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## Monetary Resident Incentives: Effect on Patient Satisfaction in an Academic Emergency Department

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### ABSTRACT

**Patient satisfaction must be a priority in emergency departments (EDs). The care provided by residents forms much of the patient contact in academic EDs. Objective:** To determine if monetary incentives for emergency medicine (EM) residents improve patient satisfaction scores on a mailed survey. **Methods:** The incentive program ran for nine months, 1999-2000. Press-Ganey surveys responses from ED patients in 456 hospitals; 124 form a peer group of larger, teaching hospitals. Questions relate to: 1) waiting time, 2) taking the problem seriously, 3) treatment information, 4) home care concerns, 5) doctor's courtesy, and 6) concern with comfort.

A 5-point Likert scale ranges from "very poor" (0 points) to "very good" (100). Raw score is the weighted mean, converted to a percentile vs. the peer group. Incentives were three-fold: a year-end event for the EM residents if 80th percentile results were achieved; individual incentives for educational materials of \$50/resident (50th percentile), \$100 (60th), \$150 (70th), or \$200 (80th); discount cards for the hospital's espresso cart. These were distributed by 11 EM faculty (six cards/month) as rewards for outstanding interactions. Program cost was <\$8,000, from patient-care revenue. Faculty had similar direct incentives, but nursing and staff incentives were ill defined and indirect. **Results:** Raw scores ranged from 66.1 (waiting time) to 84.3 (doctor's courtesy) (n=509 or ~7.2% of ED volume). Corresponding percentiles were 20th-43rd (mean=31st). We found no difference between the overall scores after the incentives, but three of the six questions showed improvement, with one, "doctors' courtesy," reaching 53<sup>rd</sup> percentile. The faculty funded the 50<sup>th</sup> percentile reward. **Conclusions:** Incentives are a novel idea to improve patient satisfaction, but did not foster overall Press-Ganey score improvement. We did find a trend toward improvement for doctor-patient interaction scores. Confounding variables, such as increasing patient census, could account for inability to demonstrate a positive effect.

## INTRODUCTION

Competition in health care dictates that patient satisfaction must be a priority in academic hospitals. While attending contact with patients has increased in recent years due to requirements for direct interaction to justify professional fee billing, resident care in the emergency department (ED) still forms much of the doctor-patient contact. Improvements in patient satisfaction may be limited without including residents in a program to enhance the patient experience.

The great majority of patient satisfaction literature in the ED is cross-sectional or observational in nature.<sup>1</sup> There are few experiments. By contrast, this study assesses the impact of an intervention designed to improve satisfaction. Previous work has identified three general categories of factors that influence patient satisfaction: patient information, provider-patient

interpersonal factors, and perceived waiting time. The present study solicits patient feedback concerning aspects of all three factors.

## OBJECTIVE

To determine if a monetary incentive program for emergency medicine (EM) residents improves physician-specific ED patient satisfaction on a national Press-Ganey survey.

## METHODS

**Study design:** Prospective mailed survey, pre- and post-intervention.

**Study setting and population:** University hospital EM residency with 18 residents (PGY1-3, six residents each year). The residents' average age was 29, and all but one came to residency directly from medical school. The ED was a Level I Trauma Center with 42,000 annual visits, with a mixture of public and private patients. ED patients were distributed by insurance status as follows: 45% Medicaid (mostly managed), 25% self-pay, 15% commercial managed care, 10% Medicare and 5% traditional indemnity. Thirty-five percent of ED patients spoke Spanish as their primary language, while an additional 10% spoke Asian languages (mostly Vietnamese). Six of the 18 residents spoke medical Spanish, while none spoke Vietnamese. Hospital-provided translator services were readily available in Spanish, while house-staff and family members were the primary translators for Asian languages. The AT & T language telephone line was used infrequently for unusual language translation. Twenty percent of ED patients were children (<14 years of age). The ED environment frequently lacked privacy. Curtains, rather than walls, separated the 13 major treatment areas (of 33 total patient care spaces) from each other. The ED underwent a remodeling of public areas (waiting room, triage and registration) during the period of the study, but the clinical space was unchanged. Average waiting times to see the physician ranged from immediate care to 4-5 hours at the extreme for less urgent cases. Twelve of the 18 residents attended an 8-hour doctor-patient relationship course sponsored by the Bayer institute. This seminar was not a part of the study, and took place approximately one-year prior. There were no other formal training sessions for doctor-patient relationships, but this aspect of EM practice was discussed approximately monthly during regular

resident conferences. Resident salaries ranged from \$31,500 for the PGY1 year to \$38,000 for the PGY3 year. Twenty-three percent of patients are admitted from the ED.

The Institutional Review Board of the sponsoring institution approved the study.

***Study Protocol:*** The incentive program ran for nine months, from November 1, 1999 through June 30, 2000. Press-Ganey is the nation's largest health care satisfaction measurement firm, and processes some six million surveys annually from over 1,000 health care organizations. It benchmarks responses for ED patients against 456 hospitals, while 124 of these form a peer group of larger, teaching hospitals. Questions on the ED survey regarding physician-patient interactions included 1) time to see a doctor, 2) whether the doctor took the patient's problem seriously, 3) whether the doctor was informative about treatment, 4) whether the doctor seemed concerned with home care, 5) the doctor's courtesy, and 6) the doctor's concern with patient comfort. Responses were on a 5-point Likert scale, from "very poor" (0 points) to "very good" (100). The raw score is the weighted mean of these answers, which is then converted to a percentile vs. the ED peer group. Surveys were only in English and mailed to each patient discharged from the ED within 2-3 days of their visit.

This study involved surveys of only patients who were treated and released from the ED. We did this because admitted patients receive a different version of the Press-Ganey survey. The Press-Ganey ED survey has 30 questions related to all aspects of the ED visit (registration, nursing, billing, treatment of family and friends, etc.). The focus of this study was to demonstrate improvement in the six physician-specific question scores. However, the Press-Ganey survey sent to admitted patients focuses on their inpatient stay, with only four different questions related to the ED portion. Hence, we excluded data from inpatient surveys.

The incentive program had three components. First, a year-end group event would be funded for the EM residents if the 80<sup>th</sup> percentile score were attained on the doctor-specific survey questions. If not, a graduated incentive for each resident for educational materials would be \$50 per resident (50<sup>th</sup> percentile),

\$100 (60<sup>th</sup>), \$150 (70<sup>th</sup>), and \$200 (80<sup>th</sup>). If the 80<sup>th</sup> percentile were attained, both the year-end event and the monetary allowance would be funded. The third component was \$4 gift certificate cards for the hospital's gourmet coffee cart. These were distributed by each of 11 EM faculty (six cards per month) as on-the-spot rewards for witnessed episodes of outstanding patient interactions. Potential cost for the program was a maximum of \$8,000, derived from the faculty's patient-care revenue. The ED faculty had a similar direct incentive plan along similar lines for patient satisfaction. Although patient satisfaction was a continuing institutional priority for nurses and staff, incentives were only indirectly related to patient satisfaction scores.

***Measurements and key outcome measures:*** Mean raw scores and percentiles versus the peer group of hospitals for the above questions were compared before and after the incentive program intervention.

***Data Analysis:*** We compared the proportions of Likert scale categorical responses using Chi-squared analysis (True Epistat, 5.0 Richardson, TX) to determine if the intervention was associated with improvement in mean scores. We set statistical significance at  $p < .05$ .

## RESULTS

Baseline scores for 3<sup>rd</sup> quarter, 1999, were based on a sample size of 509, while second quarter, 2000 results were from a sample size of 577 (response rate ~7.2% of ED volume for each quarter). Results are shown in the Table. There was no significant difference between the overall physician scores before and after the implementation of the incentive program, either by raw score or percentile. There was improvement in the percentile scores, however, for overall results, and for three of the six individual questions. This occurred despite decreases in raw scores for these three questions, presumably as a result of a parallel decline in raw scores among the peer group hospital EDs. One question, doctors' courtesy, increased from 41<sup>st</sup> to 53<sup>rd</sup> percentile. The faculty therefore elected to fund the 50<sup>th</sup> percentile award at \$50 per resident. This was justified by maintaining stable scores, while trending positively, despite an ED patient volume increase of 10% during the study period. Total cost of the program was therefore \$3,000.

**DISCUSSION**

In the past decade, patient satisfaction surveys have assumed an increasingly important role, as the corporatization of medicine continues. Market pressures have driven hospitals to compete for patients and managed care contracts. Patient satisfaction surveys and physician profiling are tools that insurers use in negotiation and selection of hospitals and EDs. Hospital administrators also use patient satisfaction data, in part, to assess the performance of their physician groups, and in planning and allocation of human and financial resources. Such survey scores can be used to select, terminate and pressure physician groups to modify individual and group performance.

EPs have criticized patient satisfaction surveys because of various shortfalls and limitations. Confounding variables impact the patient experience in the ED and alter the impression of physicians. Those include nurse-to-patient ratio, availability of specialty backup, and delays in registration, triage, bed assignment and radiological studies. These are typically caused by institutional factors out of the control of the EP. Furthermore, survey responses, both in quantity and quality, are affected by selection bias, such as primary language, degree of literacy, socioeconomic status (stable mailing address) and education.

Patient satisfaction surveys are, therefore, an imperfect measurement device from a scientific standpoint. However, from a business perspective, they are widely used as an assessment of physician groups. We believe such scrutiny is problematic. Patient satisfaction scores could impact the EM faculty group and its academic development, as well as resources committed to a residency program. The leadership of the department

or residency could be pressured to make changes inconsistent with the educational mission, e.g., alter resident schedules, impair resident autonomy, reduce time for bedside teaching.

Hence, it is prudent to involve residents in department attempts to improve scores. We believe that an incentive plan aligns residents and faculty in working to improve the patient experience. This heightens the residents' awareness of the patients' perception of care. Graduates who participate in such plans should be better prepared for post-residency practice.

We found no significant differences in the "before-" and "after-incentive -plan" patient satisfaction scores, although there was a small trend toward improvement. This trend was contrary to the overall trend in the ED, where sub-scores for nursing, ancillary testing, and family and friends categories all fell during the study period. Overall ED Press-Ganey raw score fell from 76.7 (9th percentile) to 74.8 (14th percentile) during the same period, in contrast to the improving trend in doctors' raw scores.

Excluding the "waiting time to see the doctor" question, the five patient-doctor interaction survey questions could be divided into two general categories: those that do not take additional physician time, and those that do. In the first category are the two questions on "doctors' courtesy" and "took the problem seriously," while the second category has three questions related to time spent explaining care (either in the ED upon discharge) and providing comfort. We noted a trend toward improvement in the questions that directly pertained to the interpersonal manner of the physician, but not in the questions that asked about satisfaction with factors that would take additional physician time.

Given the increasing pace of the study ED, this is not surprising. We believe the residents genuinely tried to improve their interpersonal manner, but could not or would not spend additional time with each patient at the expense of patient flow or personal clinical experience. Paradoxically, such

**Table. Patient satisfaction raw scores and percentile rankings in relation to peer group of EDs (n=114) with similar annual patient volume (30-40,000)**

	Before: 3 <sup>rd</sup> quarter, 1999		After: 2 <sup>nd</sup> quarter, 2000	
	raw score	percentile	raw score	percentile
Waiting time to see doctor	66.1	16%	64.7	28%
Doctors' courtesy	84.3	41%	84.3	53%
Took problem seriously	82.3	35%	82.0	40%
Concern for comfort	81.7	39%	80.4	35%
Informative about treatment	80.2	35%	79.1	33%
Informative about home care	80.0	27%	78.3	23%
Overall average	78.7	29%	77.7	31%

time-consuming activities might benefit patient satisfaction in one area, while worsening scores related to waiting time, as patient flow slowed to provide more comfort and patient education.

During the study period, there were forces acting against the initiative to improve patient satisfaction. Patient volume increased by 10%, as did the difficulty in getting inpatient beds. This impaired ability to see new patients, and prolonged waiting time. The other personnel in the ED, though subject to similar incentives, may not have embraced the paradigm shift toward customer satisfaction. Two additional faculty and several nurses came to work in the ED during the study period. These new people may have influenced the level of patient satisfaction. At any one time, from 1-3 off-service residents and 1-2 medical students work in the ED. They were not part of the incentive program, and, anecdotally, are less conscious about customer service. On the positive side, the opening of a new modern waiting and triage area during the study period might have influenced scores substantially. Though comfort of the waiting room increased by 10 points, this apparently did not influence the physicians' scores.

The magnitude of the incentive and the duration of the plan may not have been sufficient to change resident behavior, as the resident's primary focus is learning clinical medicine, not patient interactions. Even if the residents had earned the maximal incentive, this would have comprised only 1.1% of their yearly salary. Furthermore, the incentive was in the form of book/software allowance, not cash. This may have reduced the willingness of the residents to work toward the goals. It is possible that residents, especially early in their training, simply do not have the capacity or interest to concern themselves with customer satisfaction. They may be simply concentrating on clinical medicine, and neglecting such practice aspects. Lastly, the senior residents would have graduated prior to the final residency reward event, and may have felt they would not take advantage of the book/software incentive after graduation.

Previous work has shown that patients whose primary language is not English are less satisfied with their ED visit. In a population of 15% non-English speakers, only 52% of patients were satisfied with the ED visit (vs. 71% who spoke English), and significantly more patients (14% vs. 9.5%) would not return to the same

ED.<sup>2</sup> The ED under study has 45% non-English speaking patients, which might have masked any positive effect of the incentive program.

If the faculty has resources from patient care revenue to devote to an incentive plan, one might argue that these should be directed toward educational activities (books, subscriptions, resident travel to conferences, etc.). Residency must teach, however, both clinical and practice skills. A recent survey of EM residency graduates found that 57% felt they needed more education in residency on business aspects.<sup>3</sup> In the practice arena, there is no more important skill than the ability to forge a successful doctor-patient relationship. Therefore, investing money to foster EM practice skills is as valid as investing in teaching clinical skills.

Even though the incentive program did not significantly improve patient satisfaction scores, we received significant attention from hospital administration and other residencies in the process. Merely calling attention to the issue in a formalized way was politically advantageous for the EM faculty.

## LIMITATIONS AND FUTURE QUESTIONS

The low response rate casts doubt on the validity of the survey. We did not test for response bias, as the surveys were anonymous. However, the response rate in the study ED is typical of other urban EDs, where response rates for sample surveys are as low as 5%, and average 12%.<sup>4</sup> Regardless of the response rate, the main outcome measure is not the raw score, but the percentile comparison to like hospitals. As such, poor response rates are ubiquitous, and therefore comparisons between EDs are valid. In addition, response rates in the study ED were the same before and after the intervention, suggesting that the bias inherent in a low response rate was stable.

It remains to be seen if applying a consistent incentive across all ED personnel, not just residents, would affect any improvement in patient satisfaction scores. It is possible that monetary motivation is insufficient, in itself, to improve doctor-patient relationships. Formal education promoting techniques to improve communication may be necessary as well.

Finally, this study raises new questions that EM educators and academic leaders should address. In

the current environment, where academic institutions and their leaders are expected to compete for the viability of their training programs, should substantial monetary incentives be allowed for residents? Would our findings have been different had we used substantial direct incentives to individuals, rather than group rewards or credits for academic materials? Should financial or non-monetary deterrents be considered for poor performance?

## CONCLUSIONS

An incentive program for residents is a novel idea to attempt to improve patient satisfaction. We did not show any significant improvement related to the program, but maintenance of the physician's standing as the best performing group in the ED is laudable given the increased patient volume. Confounding variables could account for changes in scores over time. The magnitude, duration and/or implementation of the incentive program would need to be augmented to make this intervention worthwhile.

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