

Administration of Emergency Medicine

PATIENTS OVERWHELMINGLY PREFER INPATIENT BOARDING TO EMERGENCY DEPARTMENT BOARDING

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Abstract—Background: Boarding of admitted patients in the emergency department (ED) is a major cause of crowding. One alternative to boarding in the ED, a full-capacity protocol where boarded patients are redeployed to inpatient units, can reduce crowding and improve overall flow. **Objective:** Our aim was to compare patient satisfaction with boarding in the ED vs. inpatient hallways. **Methods:** We performed a structured telephone survey regarding patient experiences and preferences for boarding among admitted ED patients who experienced boarding in the ED hallway and then were subsequently transferred to inpatient hallways. Demographic and clinical characteristics, as well as patient preferences, including items related to patient comfort and safety using a 5-point scale, were recorded and descriptive statistics were used to summarize the data. **Results:** Of 110 patients contacted, 105 consented to participate. Mean age was 57 ± 16 years and 52% were female. All patients were initially boarded in the ED in a hallway before their transfer to an inpatient hallway bed. The overall preferred location after admission was the inpatient hallway in 85% (95% confidence interval 75–90) of respondents. In comparing ED vs. inpatient hallway boarding, the following percentages of respondents preferred inpatient boarding with regard to the following 8 items: rest, 85%; safety, 83%; confidentiality, 82%; treatment, 78%; comfort, 79%; quiet, 84%; staff availability, 84%; and privacy, 84%. For no item was there a preference for boarding in the ED. **Conclusions:** Patients overwhelmingly preferred the inpatient hallway rather than the ED hallway when admitted to the hospital. © 2013 Elsevier Inc.

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INTRODUCTION

Lack of hospital capacity and crowding in the emergency department (ED) is a well-recognized problem and has been a major threat to public health over the past 20 years (1–4). ED and hospital crowding are associated with ambulance diversion, patient walkouts, delays in care, medical error, and higher mortality rates (5–13).

Various strategies have been suggested to ameliorate ED and hospital crowding (14). Driven by lack of hospital capacity, solutions lie beyond the ED and must involve the entire institution. One such solution is the full-capacity protocol (FCP) (15). In times of boarding of admitted patients in the ED due to lack of inpatient beds, patients are redeployed to hallways of inpatient units while awaiting a regular hospital bed. At the authors' institution, no more than two patients are placed on any given inpatient unit. Such patients, although not in a room, are directly receiving care from the appropriate inpatient physician and nurse specialist.

Earlier studies have shown that using such a protocol is associated with decreased waiting times in the ED, decreased ambulance diversion, and overall decreased

hospital length of stay (16). A major potential barrier to implementing an FCP is the concern that it would reduce patient satisfaction. There is a paucity of patient satisfaction data on hospital-wide measures designed to alleviate ED crowding. Pines et al. noted an association between prolonged ED boarding times and lower ED and overall hospitalization satisfaction scores (11). Although prior studies have evaluated what patients believe they would prefer if given a choice, this is the first study of patients who actually experienced both ED and inpatient boarding (2,17,18).

We examined patient preference for and satisfaction with admission to ED or inpatient hallways due to crowding. We hypothesized that most patients would prefer to board on inpatient hallways rather than the hallway in the ED.

METHODS

Study Design

We performed a structured telephone survey of a 110 consecutive patients admitted to our medical center from January 1, 2008 who had been boarded in an ED hallway followed by an inpatient hallway before being transferred to a standard inpatient bed. The study was approved by the Institutional Review Board before inception and all patients gave verbal informed consent over the telephone.

Setting and Selection of Participants

Our medical center is a level 1, suburban, university-based teaching hospital with an annual ED volume of approximately 75,000 adult patients and a 22% admission rate. An FCP has been in place at our institution since 2001. The policy is implemented when the ED is full and admitted patients are awaiting in-house placement to acute care units. Patients with minimal to moderate risk factor comorbidity will be considered for hallway bed placement first, and this includes patients requiring cardiac telemetry. Patients are excluded from the FCP if they: require intermediate care unit or intensive care unit, are ventilated, require negative-pressure room, require ≥ 4 L supplemental oxygen, require suctioning, or have diarrhea or are incontinent of stool. All ED patients that required admission were screened for eligibility. These patients were identified by the emergency physician when the admission order was placed. Inclusion criteria for the study required boarding in the ED hallway after hospital admission, followed by inpatient hallway boarding before placement in a standard inpatient room. Patients were notified that their answers would be kept anonymous. The survey was conducted within several months of their hospital discharge.

Survey Instrument

We developed and pilot tested a structured survey designed to measure satisfaction with boarding in acute care units vs. the ED. The survey instrument was based on a literature review of ED crowding. After pilot testing, the survey was revised based on feedback. Piloting of the survey was done with 10 patients in the ED and on the inpatient floor. Questions were added and omitted to the survey after consulting with boarded patients. The final survey tool was then piloted with an additional 10 patients before being used in the study.

Data Collection and Processing

Patients were identified on the telephone by one of the investigators, consented, and surveyed using a structured interview. Collected data included basic demographic information. Participants were then asked the following questions:

1. What, if any, concerns did you have in the ED hallway?
2. What, if any, concerns did you have in the inpatient hallway?
3. If you came to the ED, do you think that it is alright to move another patient out of a room and into the hallway so that you can be seen quicker?
4. Would it be alright to move you out of your room into the hallway in order to see another patient quicker?

We then asked patients to compare their stays in the ED hallway vs. the inpatient hallway. Patients were asked to rate their location preference with regard to the following aspects of care, based on their personal experience with both ED and acute care unit hallway boarding: ability to sleep or rest, level of safety, level of confidentiality, level of noise, availability of hospital staff (physicians, nurses, nursing assistants, and clerks), and level of privacy. Answers for each of the items were provided on a 5-point Likert scale consisting of the following answers: ED hallway much better, ED hallway better, no preference, inpatient hallway better, and inpatient hallway much better.

Data Analysis

Standard descriptive statistics are reported, and Stata 9 (StataCorp, College Station, TX) was used to calculate 95% confidence intervals (CIs). In determining patient boarding-location preferences, ED preference for each individual item was calculated by combining the percentages of patients who answered "ED hallway much better" or "ED hallway better."

RESULTS

Of 110 patients contacted, 105 consented to participate. Their mean age was 57 ± 16 years and 52% were female. All patients were initially boarded in the ED hallway before their transfer to an inpatient hallway bed. Mean time from formal admission to bed placement for those who got a standard hallway bed was 6 h and for patients boarded in an ED hallway it was 8 h. On arrival to the floor, 25% of boarded patients had no wait for a room, 25% waited 1 h, and the remainder averaged 8 h in the hallway. We excluded those who immediately got a room on transfer to the inpatient floor.

All 105 of the respondents (100%) agreed that it was alright to move another patient into an ED or inpatient hallway so that they could be seen quicker and that it was alright to move them into an ED or inpatient hallway so that another ED patient could be seen quicker.

Overall preferred location after admission was the inpatient hallway in 85% (95% CI 75–90) of respondents. In comparing ED vs. inpatient hallway boarding, the following percentages of respondents preferred inpatient boarding with regard to rest, 85%; safety, 83%; confidentiality, 82%; treatment, 78%; comfort, 79%; quiet, 84%; staff availability, 84%; and privacy, 84%. There were no differences in preferences by age or sex.

DISCUSSION

The serious consequences of hospital crowding and ED boarding have been extensively documented and prior studies on the use of the FCP have supported its utility in impacting on consequences known to be harmful to patients. Despite its potential benefits, traditional objections to implementing FCPs include concerns that inpatient hallway boarding is unsafe and that patient satisfaction would be severely jeopardized. Prior studies at our institution have concluded that not only is inpatient hallway boarding safe in appropriate patients, but that prolonged boarding of ED patients in the ED hallways is unsafe (16,19).

The remaining objection to widespread implementation of the FCP is its potential negative impact on patient satisfaction. Several prior studies have attempted to address the impact of inpatient hallway boarding on patient satisfaction. A survey of admitted ED patients that were still in the ED by Garson et al. found that 59% preferred inpatient boarding and 41% preferred ED boarding (2). Another survey by Walsh et al. determined that 55% of admitted patients preferred inpatient hallways over ED hallways, and for their visitors, 66% preferred inpatient boarding (17). Most recently, Richards et al. surveyed 99 admitted ED patients who were awaiting bed assign-

ments and found that 42% preferred to be boarded in inpatient hallways, 33% preferred to be boarded in ED hallways, and that 24% had no preference (18). A major limitation of these three studies was that none of the patients surveyed had actually ever experienced inpatient hallway boarding. Instead, patients were asked to hypothesize whether or not they would prefer the ED or inpatient location.

In contrast to prior studies, our study included patients who were actually boarded in the ED hallway and then the inpatient hallway during the same admission. We surveyed those patients who went from the ED hallway up to an inpatient hallway and asked them to compare their experiences in both places. Our study found that patients overwhelmingly preferred the inpatient hallway rather than the ED hallway when admitted to the hospital. Furthermore, ED patients appear to be very willing to be moved out of their ED rooms after being seen so that another patient can be seen, and support this practice for all patients. These results, paired with those mentioned previously, would suggest that what patients want most is to receive timely and effective care, even if it requires placement in a less than optimal setting.

Limitations

As with any survey, several limitations apply to our study. Surveys conducted by telephone are, by their nature, restricted to patients with accurate, working numbers. Estimates of satisfaction might be subject to nonresponse bias. Although 105 of the 110 patients we contacted consented to participate in the study, we did not accurately track the number of noncontact cases (patients who boarded in the ED and acute care unit hallways and did not have a working telephone number for discharge follow-up). Our survey was conducted after hospital discharge and as such is subject to recall bias. Patients might not have been able to accurately recall or accurately match particular aspects of ED hallway or acute care unit hallway care. Although we could not verify that patients actually knew the difference between ED hallway and inpatient hallway admission, given our hospital geography (the inpatient floors are in a completely different tower, are much higher up, and are architecturally distinct from the ED layout), it is unlikely that patients confused the two locations. It is quite possible that patients' responses were influenced by social acceptability bias in which they wanted to feel like they were considerate of others in agreeing to be taken out of a room to a hallway. However, at the time of survey, patient's anonymity was guaranteed, reducing the likelihood that patients would respond in a way that differed from their true feelings.

Our study required development of a new patient satisfaction survey. We attempted to minimize instrument bias by following recommendations for survey research methodology (20). It is possible that our questions and Likert-scale responses might have been misleading or inappropriate. We attempted to limit instrument bias by pilot testing and revising the survey.

The responses collected were from a single, suburban academic hospital. The demographic profile of our region is largely Caucasian (87.5%), United States born (87.3%), English speaking (82.9%), with an educational attainment of high school graduate or higher (86.2%) (21). Furthermore, our institution has nearly a decade of experience with acute care unit hallway boarding. Therefore, it might be difficult to generalize our results to other institutions.

CONCLUSIONS

There are compelling data that the boarding of admitted patients in the ED has grave consequences for many patients, not just those who are admitted. Decreasing boarding of admitted patients in the ED produces multiple desirable patient-safety outcomes. The current study lends further support to implementing the FCP since it demonstrates that patients overwhelmingly prefer to be boarded on inpatient hallways than ED hallways.

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ARTICLE SUMMARY

1. Why is this topic important?

Boarding and crowding are major problems in the emergency department (ED) that negatively impact patient care. One solution to ED boarding when standard inpatient beds are unavailable is moving admitted patients to inpatient hallways.

2. What does this study attempt to show?

This study attempts to show whether patients prefer to be boarded in the ED or on an inpatient hallway.

3. What are the key findings?

This study demonstrates that patients overwhelmingly prefer to be boarded on an inpatient hallway than the ED.

4. How is patient care impacted?

This study supports the practice of moving boarded admitted patients from the ED to inpatient hallways.