

## BRIEF REPORT: Hospitalized Patients' Attitudes About and Participation in Error Prevention

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**BACKGROUND AND OBJECTIVE:** Although many patient safety organizations and hospital leaders wish to involve patients in error prevention, it is unknown whether patients will take the recommended actions or whether error prevention involvement affects hospitalization satisfaction.

**DESIGN AND PARTICIPANTS:** Telephone interviews with 2,078 patients discharged from 11 Midwest hospitals.

**RESULTS:** Ninety-one percent agreed that patients could help prevent errors. Patients were very comfortable asking a medication's purpose (91%), general medical questions (89%), and confirming their identity (84%), but were uncomfortable asking medical providers whether they had washed their hands (46% very comfortable). While hospitalized, many asked questions about their care (85%) and a medication's purpose (75%), but fewer confirmed they were the correct patient (38%), helped mark their incision site (17%), or asked about handwashing (5%). Multivariate logistic regression revealed that patients who felt very comfortable with error prevention were significantly more likely to take 6 of the 7 error-prevention actions compared with uncomfortable patients.

**CONCLUSIONS:** While patients were generally comfortable with error prevention, their participation varied by specific action. Since patients who were very comfortable were most likely to take action, educational interventions to increase comfort with error prevention may be necessary to help patients become more engaged.

**KEY WORDS:** medical errors; patient safety; error prevention.

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Prominent patient safety organizations and hospital leaders advocate that patients become involved in error prevention by confirming that they receive the right medication,<sup>1-3</sup> marking their surgical site,<sup>2,3</sup> and asking medical professionals whether they have washed their hands.<sup>1,3</sup> While patients are motivated to take action to avoid harm caused by errors, some actions may be unfamiliar, difficult, or anxiety provoking. Also, some patients may prefer not to participate in error prevention<sup>4,5</sup> or may be unable to do so because they are not physically or cognitively able.<sup>6</sup> Finally, patients who think an error occurred but do not report it, or who feel their error-related concerns were disregarded, may leave the hospital dissatisfied and be a risk for subsequent litigation.

With limited research available on patients' involvement in error prevention,<sup>7</sup> we surveyed 2,078 hospitalized patients to determine how comfortable they were in taking error-prevention actions, how often they engaged in these actions while

hospitalized, and whether error prevention affected their hospitalization satisfaction. We hypothesized that patients who were very comfortable with error prevention would be most likely to take action, and that involvement would not adversely affect their satisfaction.

## METHODS

### Participants

In 2003, we interviewed 2,078 hospitalized patients utilizing an established patient satisfaction measurement system.<sup>8</sup> Each week, 140 adult patients stratified by hospital and patient care unit were randomly selected for interviews from approximately 4,000 patients discharged to their homes from 11 Midwest hospitals. During their hospitalization, no formal patient error prevention educational programs were in operation.

### Questionnaire

Patient safety researchers and staff designed survey questions based on the error prevention behaviors commonly recommended for hospitalized inpatients by patient safety organizations.<sup>1-3</sup> To minimize respondent burden, we divided behaviors into 2 sets, with each patient answering questions from only 1 set. Set 1 included: asking friends/family to assist in error detection, asking doctors about medical care, asking a medication's purpose, and confirming their identity. Set 2 included: asking nurses/doctors whether they washed their hands before patient contact and helping mark a surgical site. Both sets included "reporting an error to health care professionals." Patients rated their comfort with each behavior on a 4-point Likert Scale ("very comfortable" to "very uncomfortable") and whether they took these recommended actions while hospitalized ("yes," "no," "does not apply"). Those who reported experiencing an error indicated whether it caused permanent or life-threatening harm (major error) or not (minor error). Finally, we measured patients' general attitudes regarding whether they thought patients could help prevent errors and their hospitalization satisfaction.<sup>8</sup>

### Procedure

Within 10 days of discharge, an independent survey firm made up to 15 attempts to survey patients by telephone. Patient demographics and hospitalization characteristics were merged from administrative data. To ensure that respondents were representative of all inpatients, data weighting techniques adjusted for any disproportionate sampling at individual patient, unit, and facility levels. Washington University School of Medicine provided Institutional Review Board (IRB) approval.

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## Statistical Analysis

We assessed comfort with error prevention and whether 7 error-prevention behaviors were performed using descriptive statistics. The sample size for each behavior varied as patients answered only 1 set of questions and might not have had clinical reasons to perform all behaviors (i.e., nonsurgical patients could not mark surgical sites). Because few patients asked nurses or doctors about handwashing, we combined them for statistical analyses.

We determined whether the dependent variable, performing each error-prevention behavior, was associated with age, race, gender, length of stay (LOS), payer type, emergency room (ER) admission, intensive care unit (ICU) stay, or comfort with error prevention. We chose these independent variables as predictors because past research found them to be associated with hospitalization satisfaction,<sup>8</sup> or involvement in medical decision making.<sup>4,9</sup> As patients' comfort with error prevention varied across behaviors, we used multiple logistic regression with forward stepwise selection to model each error-prevention behavior separately. We also conducted ANOVAs to examine whether hospitalization satisfaction varied by error-prevention comfort, behavior, or their interaction, and based on whether an error occurred.

## FINDINGS

### Patient Error-Prevention Comfort and Action

We interviewed 2,078 of 2,416 patients (response rate: 86%), 1,034 of whom received questions from set 1 and 1,044 from set 2. Patients were primarily Caucasian (78%), female (60%), and were hospitalized from 2 to 7 days (49%) (Table 1, available online). Most were not admitted to the ICU (10%) or ER (4%) while hospitalized.

### Patients' Comfort Level in Performing Error-Prevention Behaviors

Ninety-one percent of patients agreed (35% strongly) that patients could help prevent errors and 98% agreed (51% strongly) that hospitals should educate patients about error prevention. Patients varied in their comfort with error-prevention actions and how many performed the actions while hospitalized (Table 1). Patients were very comfortable asking a medication's purpose (91%) and general medical questions (89%), but less comfortable asking medical professionals about handwashing (46% very comfortable). While hospitalized, patients asked general medical questions (85%) and about a medication's purpose (75%), but did not help mark their surgical site (17%) or ask about handwashing (5%).

Of the 2,078 patients, 31 (1%) reported that they thought a major error occurred and 118 (6%) reported a minor error. Most patients who thought errors occurred reported them to medical professionals (75% reported major errors, 80% reported minor errors), with most of those not reporting explaining that their health care providers were already aware of the errors.

### Multivariate Predictors of Taking Error-Prevention Actions

Univariate analyses revealed that patients who were very comfortable with error prevention were significantly more likely to perform each of the error-prevention actions (Table 2). Multivariate modeling controlling for demographic and hospitalization characteristics found that very comfortable patients were at least twice as likely to ask medical personnel about handwashing, mark their surgical location, have family/friends watch for errors, ask general medical questions, report an error, and clarify a drug's purpose, compared with less comfortable patients (Table 2). Finally, although patients who spent time in the ICU, patients older than 65 years, and Caucasians were less likely to take some error-prevention actions (Table 2), no consistent pattern for any of these variables emerged across all of the error-prevention behaviors.

### Relationship Between Error Prevention and Patient Satisfaction

Patients who thought an error occurred had lower satisfaction with their hospital stay than other patients (85.7% vs 65.1%,  $P < .0001$ ). However, results of the 2-way ANOVAs predicting patients' satisfaction as a function of comfort with error prevention, error-prevention behavior, or their interaction were not significant. Therefore, participating in error prevention, regardless of whether patients were comfortable doing so, did not affect hospitalization satisfaction.

### Interpretation

Health care institutions are launching campaigns like "Speak Up"<sup>2</sup> or "It's OK to Ask"<sup>10</sup> to increase patients' involvement in error detection. Our study confirms an untested assumption of these programs that patients are interested and willing to help. However, it also reveals that hospitalized patients' comfort with error prevention varies and that they may not yet be fully engaged in all error-prevention activities.

Patients were very comfortable asking general questions about their health and medications, but less comfortable confirming their identity, marking their surgical site, or asking about handwashing. Other studies have found similar patterns where patients were more likely to ask questions than to

Table 1. Patients' Comfort Level in Performing Error Prevention Behaviors

Error Prevention Behavior	N*	% Very Comfortable	% Respondents who Took Action
Ask nurse purpose of medication	948	91.3	75.2
Ask questions about medical care	985	88.8	85.1
Ask nurse to confirm patient's identity	900	84.2	37.8
Have family or friend watch for errors	966	76.0	38.6
Tell medical staff that error occurred	112	78.4	79.7
Helping health care professionals mark surgical location	518	71.5	17.3
Ask medical personnel whether they washed their hands	924	45.5	4.6

\*Only patients who were asked about the behavior and had the opportunity to perform the behavior while hospitalized are included in the sample.

Table 2. Multivariate Predictors of Taking Error Prevention Actions

	Ask Purpose of Medication* (n=948)	Ask Questions About Care (n=985)	Confirm Identity (n=900)	Have Family Watch for Errors (n=966)	Report Error (n=112)	Mark Surgical Location (n=518)	Ask Staff Whether Washed Hands (n=945)
Comfort with error prevention*							
Very comfortable vs other comfort level	2.4 (1.3 to 4.2)	3.5 (2.1 to 6.0)	NS	4.0 (2.6 to 6.1)	3.0 (1.1 to 8.3)	4.4 (2.0 to 9.5)	6.3 (1.4 to 28.2)
Race							
NonCaucasian vs Caucasian	2.0 (1.2 to 3.1)	NS	NS	NS	NS	NS	4.1 (1.4 to 11.5)
Age (y)							
18 to 39 vs >65	NS	5.8 (2.7 to 12.2)	NS	NS	NS	0.3 (0.2 to 0.8)	NS
40 to 64 vs >65	2.1 (1.4 to 3.2)	2.8 (1.8-4.4)	NS	NS	NS	NS	NS
ICU stay							
Yes vs no	NS	0.4 (0.2 to 0.9)	0.3 (0.1 to 0.8)	NS	NS	NS	NS
LOS							
8+d vs 0 to 7 d	NS	NS	NS	NS	NS	0.4 (0.2 to 0.8)	3.2 (1.1 to 8.9)

\*Column headings list the dependent variables, while row headings list the independent variables adjusted for in each model  
NS, not significant and not included in final models; ICU, intensive care unit; LOS, length of stay.

oversee or actively participate in their own health care.<sup>1,6</sup> Patients might not have specifically asked about handwashing because of concerns that it could offend clinicians, or from a lack of awareness that handwashing by health care professionals can reduce hospital-acquired infections<sup>11</sup> and does not always occur.<sup>11,12</sup> Finally, some patients may not have understood how and when to take less familiar actions.<sup>13</sup>

As very comfortable patients were most likely to perform error-prevention actions, educational interventions to increase comfort may help patients become more engaged. For less familiar actions like marking surgical sites, patients may need clarification about why the hospital recommends involving patients and more training about how to participate. Patient safety programs can help reduce patients' fears about insulting their providers<sup>14,15</sup> by posting signs in hospital rooms about how patients can help prevent errors or by having providers wear reminder buttons stating, "Ask me if I washed my hands." Finally, some recommended error-prevention behaviors might ultimately be too difficult for most patients to perform, necessitating the development of other error-prevention strategies. For example, a computerized patient wristband to enforce correct surgical-site marking could be used instead of involving patients in marking their sites.<sup>16</sup>

Patient demographic and hospitalization characteristics were also associated with not taking some actions. Older patients and Caucasians were less likely to ask the purpose of medications compared with other groups. Further research will need to explore whether these patients were less comfortable challenging the accuracy of their medical administration or were more trusting of the health care establishment. Also, patients who were critically ill probably lacked the capacity to fully involve themselves in error prevention, even if they had the desire to do so. As critically ill patients might be more vulnerable to errors, additional research is needed to understand how to train their families to watch for errors on the patients' behalf. However, the absence of a consistent pattern of association between demographics and error-prevention actions suggests that there is no group of patients that is less likely to avoid becoming involved.

Confusion about what constitutes a medical error might also affect patients' involvement in error prevention and hospital satisfaction. Previous work has shown that patients de-

fine errors very broadly, often perceiving adverse events, service quality problems, and poor patient-provider communication to be errors.<sup>17-19</sup> In that an error study, while patients were able to detect 72 adverse events, medical errors, or near-misses that were not reported by medical professionals through traditional incident reporting, 74% reported service quality problems.<sup>20</sup> Regardless of whether an error actually occurred, patients who thought that an error occurred were significantly less satisfied than other patients. Therefore, patient educational programs about error prevention should emphasize reporting of all possible errors to allow providers the opportunity to explain why some outcomes may not be errors and minimize the likelihood of patient dissatisfaction.

This study had several limitations. First, as we are unclear why patients did not take actions, it is possible that providers initiated these actions without prompting by patients. Also, we only surveyed patients discharged to their homes and did not use chart reviews or incident reporting to confirm that reported incidents were actually medical errors. Finally, research in hospitals with active error-prevention programs is still needed to determine whether patients who are more comfortable actually take action and whether taking recommended actions results in detecting more errors.

Ideally, hospitalized patients should focus on getting well, not watch for medical errors. In the real world, patients are willing to help prevent errors, but currently have difficulty taking all the recommended actions. To successfully involve patients, they need to be educated about what they can do, be encouraged to take these actions by the health care system, and receive a receptive response from their health care providers. Only then can patients be a final safety net in helping prevent medical errors.

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## Supplementary Material

The following supplementary material is available for this article online:

**Table 1: Patient Demographics and Hospitalization characteristics.**