Disclosure of Hospital Adverse Events and Its Association With Patients’ Ratings of the Quality of Care

Lenny López, MD, MDiv, MPH; Joel S. Weissman, PhD; Eric C. Schneider, MD; Saul N. Weingart, MD, PhD; Amy P. Cohen, BA; Arnold M. Epstein, MD, MA

Background: Little is known about how the characteristics of adverse events (AEs) affect the likelihood of disclosure or how the disclosure of an AE relates to patients’ perception of quality of care.

Methods: The study included a random sample of medical and surgical acute care adult patients in Massachusetts hospitals between April 1 and October 1, 2003. The unit of analysis was the AE, and multivariable regression analyses accounted for clustering at the patient level.

Results: Overall, 603 patients reported 845 AEs, and 40% of AEs were disclosed. The AEs that required additional treatment (odds ratio [OR], 1.64; 95% confidence interval [CI], 1.16-2.32) or affected patients who reported good health (OR, 2.04; 95% CI, 1.29-3.24) were more likely to be disclosed. Disclosure was less likely if the events were preventable (OR, 0.58; 95% CI, 0.41-0.83) or if the patients were still affected by the AE at the time of survey (OR, 0.49; 95% CI, 0.31-0.78). Higher-quality ratings were associated with disclosure (OR, 2.04; 95% CI, 1.39-2.99) of preventable and nonpreventable events and with patients who felt that they were able to protect themselves from AEs (OR, 1.98; 95% CI, 1.21-3.24). Lower-quality ratings were associated with events that were preventable (OR, 0.55; 95% CI, 0.40-0.76), with events that caused increased discomfort (OR, 0.62; 95% CI, 0.46-0.86), or with events that still adversely affected the patient at the time of the survey (OR, 0.68; 95% CI, 0.46-0.98).

Conclusions: Rates of disclosure of AEs by medical personnel remain low in hospitalized patients. Disclosure of some of these events is associated with higher ratings of quality by patients.

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Patient Safety is an Essential Component of the Delivery of High-Quality Care, and the Institute of Medicine’s 2000 report, “To Err is Human,” highlighted the need for improvements. In accordance with the Institute of Medicine’s report, this study defines an adverse event (AE) as an “injury caused by medical management rather than the underlying condition of the patient. An [AE] attributable to error is a ‘preventable [AE].’” While all AEs result from medical management, not all are preventable nor result in harm. Prior studies in the United States and abroad have identified high rates of harmful AEs. Both professional and legislative efforts set an expectation that if an AE occurs health care providers will disclose it to the patient.

See Invited Commentary at end of article

In past surveys, patients have consistently reported interest in having AEs disclosed when they occur, including information about the underlying causes, consequences, and steps that have been taken to prevent recurrences. The manner in which the incident is handled has important consequences for the affected patients’ (or their families’) decision to take legal action. Physicians generally support disclosure; however, many harmful errors are not disclosed to patients. Fear of lawsuits, shame, embarrassment, lack of disclosure training, fear of losing patient trust, and uncertainty about how to discuss errors with patients are barriers to physician disclosure. Moreover, prior physician surveys document
We analyzed data from a larger study involving 2582 recently hospitalized patients and their experiences during their hospital stay. Previous analyses described patients who did and did not report AEs, and the concordance between patient reports and the medical records.24,25 The present study was limited to an analysis of AEs reported by patients.

STUDY SAMPLE

A 2-stage probability sample of patients discharged to home from acute care hospitals in Massachusetts, stratified by the size of the hospital, was selected for study. Based on a desired sample size of 6000 patients, sampling ratios were constructed so that the probability of selection across hospitals was approximately constant for the state as a whole. Details of the sample selection are described elsewhere.24

Of 6003 patients identified by the study hospitals, 4163 were eligible for the study. Eligible subjects were adults, 18 years or older, who were medical or surgical patients who stayed overnight or longer in a Massachusetts hospital between April 1 and October 1, 2003. Telephone interviews were carried out an average of 9 months after discharge. Interviews were completed with 2582 patients, for a response rate of 62% (2582 of 4163) (Figure 1). Detailed interviews were completed with those patients who reported AEs during their hospitalization (n=749).

A partial HIPAA (Health Insurance Portability and Accountability Act) waiver was obtained to permit hospitals to provide patient names and addresses but no clinical information to the data collection organization. All the protocols for sampling and data collection were approved by the institutional review boards of the institutions with which the investigators were affiliated and by the institutional review boards of the participating hospitals.

SURVEY INSTRUMENT

The survey instrument underwent multiple stages of development and testing based on focus groups and cognitive interviewing.26,27 The final interview took 20 minutes on average to administer. The principal measurement objective was to learn about a patient’s experience with AEs. We focused on AEs rather than errors for 2 reasons: (1) AEs represent poor outcomes regardless of whether or not they were caused by errors; and (2) patients are more likely to be aware of harm that they sustained rather than of an error that may not have caused them any injury. Patients were asked to describe any “negative effects” or “complications” of their hospitalizations. The first series of questions regarding AEs assessed 4 categories of hospital care: (1) hospital staff administering medicines brought from home, (2) new medicines given in the hospital, (3) surgery, and (4) procedures or tests. These categories of events are well-known sources of AEs. While the list of categories is not exhaustive, it is comprehensive and covers the vast majority of types of events reported in previous studies of AEs in acute care hospitals.3,28 Any additional events not included in these 4 categories were catalogued as miscellaneous experiences.

Disclosure was defined as a positive answer to the following question: “Did anyone from the hospital explain why the negative effects occurred?” Additional questions were asked about the effects of the AEs (Table 1). All patients were also asked to rate their perception of the quality of the medical treatment they received. Quality ratings were categorized on a 5-point scale (1, excellent; 2, very good; 3, good; 4, fair; and 5, poor).

Figure 1. Sample selection flowchart. AE indicates adverse event.
that were judged to be of little consequence, such as veni-

tive symptoms, prolonged hospitalization, or abnormalities in

experience and judgment, they classified each incident as life threat-

ventability of each patient-reported event using categories

patients, 603 reported 845 events that met our definition of an

reports. A total of 749 patients reported AEs. Of these 749 pa-

respondents reported in the interview. A reported incident was

AE was reviewed independently by 2 physicians (E.C.S. and

After the interviews, the respondents’ information about each

tions, and attempted to arrange a time to conduct the interview.

A minimum of 6 calls were made at different times and on dif-

DATA COLLECTION PROCEDURES

Sampled patients received an initial mailing that included an in-

troductory letter, a letter from the hospital, and answers to fre-

quently asked questions. A 1-800 number was provided for pa-

tients to opt out. Interviews were conducted by professional

interviewers from the Center for Survey Research at the Univer-

sity of Massachusetts, Boston. Interviewers called the sampled

patients, explained the purposes of the study, answered ques-

ions, and attempted to arrange a time to conduct the interview.

We also collected information on patient characteristics (sex,

age, and race/ethnicity) and asked patients about their self-

perceived health status and whether they felt able to protect

themselves from AEs. Furthermore, we asked about the ef-

fects of AEs on their hospitalization (whether there was in-

creased discomfort, increased length of stay, and additional

therapy needed or whether the patient was still affected at the

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creased discomfort, increased length of stay, and additional

therapy needed or whether the patient was still affected at the

time of the interview).

PHYSICIAN REVIEW

After the interviews, the respondents’ information about each

AE was reviewed independently by 2 physicians (E.C.S. and

S.N.W.). The physician reviewers had access only to what the

respondents reported in the interview. A reported incident was

excluded if the event was likely the result of the underlying con-

dition rather than of medical care, if it occurred before the

sampled hospital admission, if no AE was apparent from the

patient’s report, or if the incident appeared to duplicate other

reports. A total of 749 patients reported AEs. Of these 749 pa-

tients, 603 reported 845 events that met our definition of an

AE (Figure 1).

The physician reviewers then coded the severity and pre-

ventability of each patient-reported event using categories

adapted from previous studies.20,30 Based on their clinical ex-

perience and judgment, they classified each incident as life threat-

ening, serious, significant, or insignificant. A serious event was

one that affected organ function; a significant event resulted in

symptoms, prolonged hospitalization, or abnormalities in

laboratory test results. Insignificant events were defined as those

that were judged to be of little consequence, such as a veni-

puncture or an infiltrated intravenous catheter site. The 2 phy-

sician reviewers judged preventability in the context of average-

care in US hospitals. Reliabilities were calculated based on

120 cases that the reviewers both reviewed independently, yield-

ing excellent κ scores for the presence of adverse drug events

(κ = 0.97) or other AEs (κ = 0.83). The reliability was good for

preventability (κ = 0.71) and fair for severity (κ = 0.43).

STATISTICAL ANALYSIS

Preliminary analyses found no effect on estimates of weight-

ing for differential nonresponse across hospitals. Furthermore,
because the design effect resulting from the 2-stage sample

was equal to 1.01, adjustments of variance estimates were not

needed.31

The unit of analysis was the AE. Binary logistic regression

was used to determine predictors of disclosure. The complete

binary model consisted of all patient (Table 2) and event

(Table 1) characteristics. A series of ordinal logistic regression

models were constructed to assess whether the patient or AE

characteristics were individually associated with higher qual-

ity, unadjusted for confounders. A complete ordinal logistic

multivariate model was then constructed to evaluate the effect

of all patient and event characteristics that were associated

with patient quality ratings. Because the survey comprised primar-

ily white participants (92%), the other race/ethnicity groups

were collapsed into a “nonwhite” category. Another ordinal lo-

gistic model, with quality ratings as the dependent variable, was

applied to all previously mentioned variables along with a se-

verity-disclosure interaction term. Finally, to assess the im-

pact of preventability of AEs on patient-perceived quality, the

previously mentioned ordinal logistic models were analyzed

separately for the subset of events that were categorized by the

physician reviewers as preventable. Generalized estimating equa-

tions (the GENMOD procedure in SAS software, version 9.1;

SAS Institute Inc, Cary, North Carolina) were used to account

for clustering of multiple AEs at the patient level. Preliminary

analyses found no significant clustering at the hospital level.

RESULTS

PATIENT CHARACTERISTICS

Our study consisted of 845 AEs reported by 608 pa-

tients (Table 2). More than 50% of the participants were

white (92%), female (64%), and older than 50 years (66%).

Racial and ethnic minorities represented 11% of the

sample. The majority of the participants reported being

in good health (73%) and felt that they were able to pro-

tect themselves from AEs (83%).

EVENT CHARACTERISTICS

A small percentage of the events (7%) were attributable

to the way the participants’ previous medications were

managed in the hospital, and 40% were related to a newly

prescribed drug. Surgical procedures accounted for 34% of

the events, while tests and procedures accounted for

9% of the total. Most participants reported 1 incident,

while 27% reported 2 or more events (maximum re-

ported, 7) (Table 1).

Of 845 AEs, 40% were disclosed (as defined above) to

participants. The physician panel ranked 31% (n = 260)

of the events as preventable and 75% as severe. Of the

preventable events, 30% were disclosed. More than 50%
of the patients reported increased discomfort, but only 22% reported still being affected at the time of interview because of the AE. An increased length of stay because of the AE was reported by 24% of the patients.

RATINGS AND PREDICTORS OF DISCLOSURE

Patients were less likely to report disclosure if they were older than 50 years, did not report good health, experienced preventable events, or were still affected by the AE at the time of the interview (Table 3). In multivariate analyses, patients were less likely to report disclosure if the event was judged preventable or if they were still affected by the AE at the time of the interview. Disclosure was more likely with AEs that required additional treatment and among patients who reported good health (Table 4).

RATINGS AND PREDICTORS OF QUALITY

Overall, the mean (SD) quality rating for patients in this study was 2.09 (1.18) (1, excellent [42%]; 2, very good [27%]; 3, good [18%]; 4, fair [9%]; and 5, poor [5%]). Patients were more likely to rate the quality of their hospitalization higher if there had been disclosure of the AE in both bivariate (Figure 2) and multivariate analyses. These findings remained unchanged in the subset analysis that was restricted only to physician-rated preventable events (n = 260). The adjusted odds ratio (OR) that was associated with disclosure on patients’ quality ratings was 2.20 (95% confidence interval [CI], 1.25-3.86) for preventable events. Patients rated the quality of their hospital experience lower if they were still affected, if they had increased discomfort because of the AE, or if they reported being in better health. These analyses controlled for patients’ perceived ability to protect themselves from an AE. Other factors associated with

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Table 3. Patient and Event Characteristics of 845 Adverse Events (AEs), by Disclosure Status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Disclosed</th>
<th>Not Disclosed</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>124 (38)</td>
<td>175 (35)</td>
<td>.44</td>
</tr>
<tr>
<td>Female</td>
<td>200 (62)</td>
<td>321 (65)</td>
<td></td>
</tr>
<tr>
<td>Age, y</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>≤50</td>
<td>149 (46)</td>
<td>183 (37)</td>
<td></td>
</tr>
<tr>
<td>&gt;51</td>
<td>175 (54)</td>
<td>313 (63)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>293 (92)</td>
<td>446 (91)</td>
<td>.97</td>
</tr>
<tr>
<td>No</td>
<td>27 (8)</td>
<td>42 (9)</td>
<td></td>
</tr>
<tr>
<td>Patient reports good health</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Yes</td>
<td>258 (80)</td>
<td>317 (64)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>64 (20)</td>
<td>177 (36)</td>
<td></td>
</tr>
<tr>
<td>Patient feels able to protect self</td>
<td></td>
<td></td>
<td>.89</td>
</tr>
<tr>
<td>from AEs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>261 (81)</td>
<td>400 (82)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>63 (19)</td>
<td>90 (18)</td>
<td></td>
</tr>
<tr>
<td>Event characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased discomfort because of the AE</td>
<td></td>
<td></td>
<td>.85</td>
</tr>
<tr>
<td>Yes</td>
<td>191 (60)</td>
<td>275 (59)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>130 (40)</td>
<td>195 (41)</td>
<td></td>
</tr>
<tr>
<td>Increased length of stay because of the AE</td>
<td></td>
<td></td>
<td>.43</td>
</tr>
<tr>
<td>Yes</td>
<td>72 (23)</td>
<td>118 (25)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>245 (77)</td>
<td>346 (75)</td>
<td></td>
</tr>
<tr>
<td>Additional treatment because of the AE</td>
<td></td>
<td></td>
<td>.12</td>
</tr>
<tr>
<td>Yes</td>
<td>152 (47)</td>
<td>193 (41)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>169 (53)</td>
<td>273 (58)</td>
<td></td>
</tr>
<tr>
<td>Still affected by the AE</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Yes</td>
<td>44 (14)</td>
<td>128 (27)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>276 (86)</td>
<td>349 (73)</td>
<td></td>
</tr>
<tr>
<td>Physician-rated preventability</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Preventable</td>
<td>78 (24)</td>
<td>182 (37)</td>
<td></td>
</tr>
<tr>
<td>Not preventable</td>
<td>245 (76)</td>
<td>314 (63)</td>
<td></td>
</tr>
<tr>
<td>Physician-rated severity</td>
<td></td>
<td></td>
<td>.65</td>
</tr>
<tr>
<td>Severe</td>
<td>237 (73)</td>
<td>374 (75)</td>
<td></td>
</tr>
<tr>
<td>Not severe</td>
<td>86 (27)</td>
<td>122 (25)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Multivariable Logistic Regression of Predictors of Disclosure

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient characteristics</td>
<td></td>
</tr>
<tr>
<td>Male sex</td>
<td>1.21 (0.81-1.80)</td>
</tr>
<tr>
<td>Age &gt;50 y</td>
<td>1.00 (0.98-1.00)</td>
</tr>
<tr>
<td>Whiteb</td>
<td>0.88 (0.44-1.78)</td>
</tr>
<tr>
<td>Patient reports good health</td>
<td>2.04 (1.29-3.24)</td>
</tr>
<tr>
<td>Event characteristics</td>
<td></td>
</tr>
<tr>
<td>Increased discomfort because of the AE</td>
<td>1.01 (0.71-1.45)</td>
</tr>
<tr>
<td>Increased length of stay because of the AE</td>
<td>1.17 (0.76-1.80)</td>
</tr>
<tr>
<td>Additional treatment because of the AE</td>
<td>1.64 (1.16-2.32)</td>
</tr>
<tr>
<td>Still affected by the AE</td>
<td>0.49 (0.31-0.78)</td>
</tr>
<tr>
<td>Physician-rated preventability</td>
<td>0.58 (0.41-0.83)</td>
</tr>
<tr>
<td>Physician-rated severity</td>
<td>0.92 (0.60-1.39)</td>
</tr>
</tbody>
</table>

Abbreviations: AE, adverse event; CI, confidence interval; OR, odds ratio. Disclosure defined as an affirmative response to the question, “Did anyone from the hospital explain why the negative effects occurred?” Complete case analysis method, n = 727. The model was controlled for clustering of AEs at the patient level and for all the characteristics listed in Tables 1 and 2. Reference group was entered as a binary variable: white vs nonwhite.

Figure 2. Disclosure and quality ratings. The patients’ quality ratings, based on disclosure of adverse events, were scored as follows: 1, excellent; 2, very good; 3, good; 4, fair; and 5, poor.
lower-quality ratings included whether the event was rated preventable and whether the event was associated with new medicines that were prescribed during the hospitalization. Among preventable events, lower quality was associated with patients reporting increased discomfort because of the AE (OR, 0.46; 95% CI, 0.27-0.78). No statistically significant interaction was found between the effect of the severity of the AE on patient quality ratings by whether the AE was disclosed or not (P = .87).

Our study has 5 major findings. First, we found that fewer than half of the AEs reported by patients were disclosed. Second, an AE was more likely to be disclosed if additional treatment was provided to address the AE during hospitalization. Third, clinicians were less likely to disclose events that were associated with a more prolonged impact on the patient. Fourth, they also disclosed fewer preventable events than nonpreventable ones. Finally, patients who reported an AE and had it disclosed to them gave a higher rating of the quality of their care than patients who reported an AE that was not disclosed. Importantly, high-quality ratings continued to be associated with disclosure whether or not the event was deemed preventable.

Studies suggest that physicians generally agree that disclosure of AEs is an important component of high quality of care. However, physicians are also reluctant to fully disclose errors to patients and have varying opinions of when and how much to disclose. We found a relatively low rate of disclosure by medical personnel (40%), similar to previous studies documenting a “disclosure gap.” We also found that the probability of disclosure was related to the nature of the AE, suggesting that hospital staff are selective about which events they disclose. Disclosure was more likely if the AE required additional treatment and less likely if the AE was preventable. In the former case, the event may have more often been apparent, making disclosure moot. These findings are consistent with prior research demonstrating that for errors that might not be apparent to the patient, physicians are less likely to disclose the errors and are more likely to provide less information about the errors when they do disclose them. Our findings on preventability suggest hesitancy in disclosing events that might imply hospital errors. This may be because of a fear of lawsuits, shame, and a lack of disclosure training.

Our results suggest that patients may appreciate being informed about errors in their care and may view disclosure of errors as a signal of high-quality (rather than low-quality) care. Disclosure of AEs doubled the odds that patients would give higher ratings to the quality of their care. This finding is consistent with previous patient surveys documenting the high value that patients place on disclosure. Prior studies have shown that disclosure may strengthen the physician-patient relationship and failure to disclose has been associated with decreased patient trust and satisfaction and with an increased chance of a malpractice suit. Our findings extend the literature by showing that disclosure is associated with patient perception of higher-quality care, even among patients who have been harmed by an AE. Our results may reassure physicians who worry about the consequences of disclosure on patients’ perceptions of quality.

Our survey has the advantage of eliciting views of quality offered by patients who report having been harmed by an AE. Our study sample consisted of recently discharged medical and surgical patients who reported 1 or more AEs. This approach provides a potentially more accurate perspective on disclosure behavior than previous studies that have surveyed patients about their opinions regarding hypothetical vignettes involving AE disclosure.

Relying solely on medical record review for identifying AEs has proved to be insufficient owing to variable standards of documentation, clinician unawareness or oversight, and concern about liability exposure. Several studies suggest that patients are capable of identifying medical errors. Patient reports have important advantages in that patients may uncover AEs that are not identified from the medical record. There are also disadvantages to patient reporting of AEs, including patients’ lack of technical knowledge, poor recall, and social desirability bias, because patients may feel the need to respond favorably, contrary to their actual experience. However, a prior study of our data suggests that even many months after discharge patients are still able to recall AEs that occurred during their hospitalization. We found that agreement between the medical chart review and patient survey was 77% for all events and 94% for serious and life-threatening events. These findings are slightly better than those of a single teaching hospital analysis of inpatient AEs that stated that 55% of patient-reported events had confirming information in the medical record.
Our study had several limitations. First, the average 9-month interval between the patient’s discharge and the telephone interview may have led to underreporting of AEs because of recall bias and may have increased the reported incidence of events that had a greater clinical impact. Most of the events were characterized by the physician panel as serious, making the finding of an association between higher perceived quality and disclosure particularly striking. Second, underreporting may have occurred because of our inability to survey those patients who died or who were sickest, 2 groups that may be at highest risk for AEs. Younger and healthier patients may be better able to participate and report AEs than older and sicker patients, potentially overestimating the relationship between quality and disclosure. Clinicians may have preferentially disclosed the AE and their errors to healthier patients: those who were more likely to recover from the incident and to understand what had occurred. Third, disclosure is a complex event or series of events that our data set may not be able to fully capture. It is possible that the AE was disclosed to a family member without the patient’s awareness. Fourth, our reliance on a single question for quality limits the ability of our study to characterize the different dimensions of quality that might be related to the disclosure process. Fifth, most respondents were white, and our findings may not generalize to other racial or ethnic communities that may experience and report complications differently or rate the quality of their care differently. Finally, although our data are from 2003, they are consistent with more recent data on disclosure. A recent study by Iedema et al, using interview data from late 2007, demonstrated that patients injured by AEs value and expect disclosure from their providers.

Disclosure of AEs is an important component of high-quality care. The Institute of Medicine’s 2000 report, “To Err Is Human,” defines safety in health care as an essential component of quality health care delivery. The National Quality Forum has defined disclosure of unanticipated outcomes to patients as an essential component of high-quality health care and has included disclosure to its list of safe practices. These standards have been endorsed by major quality-of-care organizations such as the Joint Commission, the Institute for Healthcare Improvement, the Agency for Healthcare Research and Quality, and the Centers for Medicare and Medicaid Services. Our findings demonstrate that patients, even when harmed, consider disclosure of AEs to be integral to quality. These findings remain even in cases in which the AEs were deemed preventable (ie, errors) by physician review. Also, disclosure is essential to patient-centered care because it respects patient autonomy and truth telling. Our findings suggest that the disclosure gap remains prevalent even though patients rate their care favorably when AEs are disclosed. Interventions to increase disclosure may contribute to patients’ perceptions of quality.

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Author Contributions: All authors had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: López, Weissman, Schneider, and Epstein.

Acquisition of data: Weissman and Weingart.

Analysis and interpretation of data: López, Weissman, Weingart, Cohen, and Epstein.

Drafting of the manuscript: López, Weissman, and Epstein.

Critical revision of the manuscript for important intellectual content: López, Weissman, Schneider, Weingart, Cohen, and Epstein.

Statistical analysis: López.

Obtained funding: Weissman, Schneider, and Epstein.

Administrative, technical, and material support: Weissman, Weingart, and Cohen.

Study supervision: Weissman and Epstein.

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REFERENCES

and regulation became far more aggressive.3 For example, importantly (particularly in the early years), accreditation a variety of pressures to improve patient safety. Perhaps most a result of medical errors (“a jumbo jet a day”) unleashed statistic that 44 000 to 98 000 Americans die each year as deserve.

Entering the Second Decade of the Patient Safety Movement

The Field Matures

December 1, 2009, marks the 10-year anniversary of the Institute of Medicine report on medical mistakes, To Err is Human, the blockbuster that launched the modern patient safety movement.1,2 The occasion of this anniversary gives us an opportunity to reflect on the progress we have made in patient safety and on areas that have not received the attention they deserve.

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The Institute of Medicine report that popularized the statistic that 44 000 to 98 000 Americans die each year as a result of medical errors (“a jumbo jet a day”) unleashed a variety of pressures to improve patient safety. Perhaps most importantly (particularly in the early years), accreditation and regulation became far more aggressive.3 For example, the Joint Commission (previously the Joint Commission on Accreditation of Healthcare Organizations), launched a program of unannounced hospital surveys and began promoting and enforcing a variety of “National Patient Safety Goals.”4 The Accreditation Council on Graduate Medical Education enacted duty hour limits for residents and began emphasizing “systems-based practice” in training curricula,5,6 and a majority of US states began requiring reporting of serious adverse events.7

In other areas, progress came more slowly. Despite evidence that computerization could prevent many kinds of medication errors, relatively few hospitals and clinics installed sophisticated information technology systems.8 The emphasis on a systems-focused, “no blame” environment began conflicting with increasing pressure for individual and organizational accountability.9,10

Finally, some key areas in patient safety were all but ignored in the early years. This issue of Archives contains articles that promote our understanding of 2 of the most important topics in this category: disclosure of adverse events to patients and diagnostic errors. Let us begin with disclosure of adverse events to patients. Before the safety movement, most physicians resi-