Health Plan Members’ Views about Disclosure of Medical Errors

Kathleen M. Mazor, EdD; Steven R. Simon, MD; Robert A. Yood, MD; Brian C. Martinson, PhD; Margaret J. Gunter, PhD; George W. Reed, PhD; and Jerry H. Gurwitz, MD

Background: Various authorities and national organizations encourage disclosing medical errors, but there is little information on how patients respond to disclosure.

Objective: To examine how the type of error, severity of adverse clinical outcome, and level of disclosure affect patients’ responses to error and disclosure.

Design: Mail questionnaire survey (8 versions were developed) varying 3 factors in a completely crossed, randomized, factorial design. Each questionnaire included a vignette describing 1) a medical error (failure to check for penicillin allergy or inadequate monitoring of antiepileptic medication); 2) an associated clinical outcome (life-threatening or less serious); and 3) a physician–patient dialogue, with either full disclosure (acceptance of responsibility and an apology) or nondisclosure (expression of regret without acceptance of responsibility or an apology).


Participants: Random sample of 1500 adult members received the questionnaire, with a 66% response rate.

Measurements: Likelihood of changing physicians, likelihood of seeking legal advice, ratings of patient satisfaction, trust and emotional reaction in response to a vignette and dialogue, and views on medical error and disclosure.

Results: Full disclosure reduced the reported likelihood of changing physicians and increased patient satisfaction, trust, and positive emotional response. Full disclosure reduced the reported likelihood of seeking legal advice in only 1 error-and-outcome vignette. In the other vignettes, the percentage of patients indicating that they would seek legal advice was relatively high even with full disclosure. Almost all respondents (98.8%) wanted to be told of errors, most (83%) favored financial compensation if harm occurred, and few (12.7%) favored compensation if no harm occurred.

Limitations: Since the study was done in the context of a managed care plan in one geographic area, it could not assess whether the results are generalizable to other populations. In addition, it could not determine whether responses to the simulated situations used predict responses to real situations.

Conclusions: Patients will probably respond more favorably to physicians who fully disclose medical errors than to physicians who are less forthright, but the specifics of the case and the severity of the clinical outcome also affect patients’ responses. In some circumstances, the desire to seek legal advice may not diminish despite full disclosure.

Since the publication of the Institute of Medicine’s report, “To Err Is Human” (1), the problem of medical errors has gained increased recognition by the general public (2). Researchers and policymakers have begun to focus serious efforts on improving patient safety (3–6), but the complexity and uncertainty inherent in the practice of medicine make it unlikely that medical errors will ever be eliminated completely. When medical errors occur, effective physician–patient communication is critical. Ethical and professional guidelines emphasize that physicians have a responsibility to disclose medical errors (7–9), and recent standards link disclosure of adverse events to hospital accreditation (10). There may also be pragmatic reasons for disclosure—patients who pursue litigation may be motivated by a desire for a full explanation of the adverse event (11–13), and patients may be less likely to sue physicians who provide full and honest explanations (14).

Although the preponderance of opinion is that disclosure is the right thing to do when a medical error has resulted in patient injury, disclosure often does not occur (15–20). Several articles (21–33) and continuing medical education materials developed by national organizations (34) offer guidance, but there is limited empirical literature related to disclosure of medical errors to patients or families (11–20, 35–41). Of these articles, most focused on whether disclosure occurred or would occur; few examined the disclosure process or the consequences of disclosure in any way. Thus, the lack of empirical research in this area may be a barrier to disclosure.

We therefore undertook a study to assess patients’ views of disclosure. We surveyed a representative sample of members of a large health plan to measure responses to a set of 8 vignettes, each of which described a medical error, the clinical outcome of the error, and a physician–patient dialogue about the event. The goals of the study were to examine the relationship of the error, severity of clinical outcome, and the level of disclosure to 5 dependent variables: likelihood of changing physicians, likelihood of seeking legal advice, patient satisfaction, trust, and emotional response. We also sought to determine patients’ attitudes, beliefs, and preferences about medical errors and disclosure in general.

**Methods**

**Sample**

We conducted a mailed questionnaire survey of 1500 members of a New England–based health maintenance organization. Member names were randomly sampled from a master list of all health plan members 21 to 85 years of age \((n = 130 009)\). Selected members were sent a letter indicating that they would be receiving the questionnaire, fol-
Patients’ Views on Disclosure of Medical Errors

Context
Disclosing medical errors is ethically appropriate, but its effect on the doctor–patient relationship and the likelihood of patients seeking legal advice is unknown.

Contributions
Clinical vignettes and questionnaires assessing patient opinion were mailed to members of a health maintenance organization. Each vignette varied the type of error, its severity, and the completeness of error disclosure. Respondents indicated that full disclosure improved trust, satisfaction, and emotional response. Decisions to seek legal advice were complex and were not necessarily deflected by full disclosure.

Implications
While full disclosure improved patient satisfaction, it did not prevent or increase the likelihood of seeking legal advice.

The Editors

lowed approximately 1 week later by the questionnaire. A $5 cash incentive was enclosed with the questionnaire. Nonrespondents were sent a reminder postcard 1 week later and a second copy of the questionnaire 1 week after. The response rate was calculated as the number of usable completed surveys returned (958 surveys) divided by the number of mailed surveys (1500 surveys) minus the number of surveys returned by the mail service as undeliverable (47 surveys).

The study protocol was approved by the institutional review boards of the participating institutions.

Questionnaire Design and Administration
The questionnaire was developed on the basis of a systematic review of the literature (11–20, 35–41) and the results of 2 focus groups comprising 14 patient volunteers. The questionnaire was refined after pretesting for length and comprehensibility.

The final questionnaire, which is available from the first author, consisted of 4 sections: 1) a vignette describing a medication error and the clinical outcome of the error, followed by a physician–patient dialogue about the error; 2) items assessing participants’ response to the scenario and dialogue; 3) items assessing attitudes, beliefs, and preferences about medical error and disclosure in general; and 4) background and demographic items. Each section is described in detail in this paper.

Vignettes and Dialogues
Eight versions of the questionnaire were developed to produce a completely crossed factorial design with 2 levels each of the following variables: type of medication error (inadequate monitoring of antiepileptic medication vs. prescribing penicillin when penicillin allergy is documented), clinical outcome of the error (life-threatening outcome vs. less serious outcome), and level of physician disclosure about the error (nondisclosure with limited information and responsibility vs. full disclosure with high information, responsibility, and promise to prevent recurrences). Figure 1 summarizes the vignette and dialogue combinations comprising each condition, and the Appendix (available at www.annals.org) presents them in detail. Each participant received only 1 version; that is, a single error and outcome vignette with a corresponding dialogue where-in the physician and patient or family member discussed the error and its outcome. Distribution of versions was randomized.

Although most medical errors are considered systems errors (42) rather than the responsibility of individual providers, the actions of the treating physician may contribute to, or mitigate the results of, an error. Furthermore, the physician will often be considered—by the health care team and by the patient—to be the most appropriate person to speak to the patient or family after an error has occurred (43–45). We therefore chose vignettes in which the physician had direct involvement in the error and restricted our focus to the physician as communicator. These decisions were not intended to contradict the importance of a systems approach to patient safety or perpetuate a culture of blame, but rather to provide a starting point for study in this important area.

Three items were included to assess whether the vignettes were effective in communicating as intended; these items queried whether respondents perceived that an error had been made in each scenario and dialogue combination, whether the physician was perceived as responsible, and whether the error was perceived as preventable. Five response options were provided: “strongly disagree,” “disagree,” “agree,” “strongly agree,” and “don’t know.”

Responses to the Vignette and Dialogue
Respondents were instructed to imagine themselves as the patient or family member in the vignette and dialogue and to respond accordingly. Two items, developed for this study, focused on behavior. Respondents were asked to indicate whether they would change physicians or seek legal advice. The same 5 response options mentioned earlier were provided. For the analysis, responses were recoded to be dichotomous, with “agree” or “strongly agree” responses compared with all others. Patient satisfaction was assessed by using 5 items drawn from the American Board of Internal Medicine Patient Satisfaction Questionnaire (46). Trust in the physician was assessed by using 8 items drawn from the Trust in Physician Scale (47) plus 1 supplemental item (“This doctor seemed to be withholding important information.”). Item wording was modified slightly to refer to the vignette rather than a real encounter. Five semantic differential items were developed for this study to assess emotional response: “angry” or “calm,” “frightened” or “reassured,” “worried” or “relieved,” “wronged” or “respected,” and “dissatisfied” or “satisfied.” All were on a
5-point scale; the most positive response option (for example, "reassured") was assigned a value of 5, and the most negative response option (for example, "worried") was assigned a value of 1. The variable emotional response was computed as the mean across the 5 semantic differential items, with higher scores indicating a more positive emotional response.

**Attitudes, Beliefs, and Preferences about Medical Error and Disclosure**

A set of 9 items was developed on the basis of the focus group interviews and a review of the literature to measure attitudes and beliefs about medical errors and disclosure in general. Five response options were provided: "strongly disagree," "disagree," "neutral," "agree," and "strongly agree". Nine items were developed to assess respondents' preferences for action after a medical error. These items were also based on the review of the literature on disclosure and were intended to directly assess preferences for commonly recommended responses to error (for example, "I would want to know the full details of how the error occurred.") Again, 5 response options were provided: "strongly disagree," "disagree," "neutral," "agree," and "strongly agree."
for 3-way interactions were not statistically significant, further analyses were conducted to test for statistically significant 2-way interactions); and a full model that included adjustment for age, sex, education, race or ethnicity, personal experience with errors and personal suffering due to errors in addition to the 3 design variables and any statistically significant design variable interactions determined by the interaction model.

Model-based means and percentages were estimated by setting other variables in the model to their mean values.

Chi-square tests were used to assess whether each of the design variables (type of error, severity of clinical outcome, and level of disclosure) influenced responses to the items intended to measure general attitudes, beliefs, and perceptions related to medical error, using a criterion value of a P value less than 0.01.

Statistical analyses were done with Stata software, version 8 (Stata Corp., College Station, Texas), and SPSS software, version 11.5 (SPSS, Inc., Chicago, Illinois).

Role of the Funding Source

The funding source had no role in the collection, analysis, or interpretation of the data or in the decision to submit the manuscript for publication.

RESULTS

A total of 958 completed usable questionnaires were returned, for a response rate of 66%. Table 1 presents the characteristics of survey respondents. Compared with non-respondents, respondents were more likely to be female (57% of respondents were female, compared with 44.7% of nonrespondents; Pearson chi-square, 21.2; P < 0.001). Respondents were also older than nonrespondents (mean age for respondents, 51.9 years; nonrespondents, 45.0 years; t = 8.29; P < 0.001). Most respondents (91.6%) reported their race or ethnicity as white, which is consistent with the U.S. census statistics for this area for the year 2000, in which 89.6% of respondents identified themselves as white (48). With respect to education, 28.5% of respondents 25 years of age or older reported earning a 4-year college degree or higher compared with 27% of census respondents 25 years of age or older (48).

Almost one third of the sample (31.4%) reported personal experience of a medical error in their own treatment or that of a close family member, 12.1% reported having personally suffered an injury or harm as the result of a medical error, and 1.4% reported having filed a claim or lawsuit against a physician or other health care provider (Table 1). This rate of reporting personal experience with error is slightly lower than the rate reported by a national survey in which 42% of the public and 35% of physicians reported experience with an error in their own care or that of a family member (19).

The randomization of questionnaire versions resulted in groups that were balanced in terms of age, sex, education, race or ethnicity, and personal experience with errors and personal suffering due to errors (data not shown).

Validation of Error Vignettes

In response to the validation items, most respondents in all conditions agreed that the physician had made an error (95.8%), that the physician was at fault (88.8%), and that the incident could have been prevented (94.8%).

Likelihood of Changing Physicians or Seeking Legal Advice

Figure 2 presents the observed data and Table 2 summarizes the results of the logistic regression analyses for patients’ likelihood of changing physicians. All 3 independent variables, type of medication error (inadequate monitoring of antiepileptic medication vs. prescribing penicillin when penicillin allergy is documented), clinical outcome of the error (life-threatening outcome vs. less serious outcome), and level of physician disclosure about the error (nondisclosure with limited information and responsibility vs. full disclosure with high information, responsibility, and promise to prevent recurrences) were related to the likelihood of changing physicians. Nondisclosure, life-threatening outcome, and the inadequate monitoring error all increased the likelihood of changing physicians (Table 2). However, interpretation of the odds ratios for this model is complicated by the statistically significant 2-way interaction.
interaction (error situation by clinical outcome, likelihood ratio test; $P = 0.03$). This suggests that the effect of the clinical outcome may vary depending on the error; we therefore constructed separate models for each error situation (Table 2). The results of these additional analyses suggest that while the effect of disclosure was similar in the 2 error situations studied here, clinical outcome had a somewhat greater effect in the missed allergy error situation compared with the monitoring error situation (odds ratios, 3.086 [95% CI, 2.10 to 4.53] vs. 1.724 [CI, 1.18 to 2.51], respectively).

Figure 2 reports the observed data and Table 2 reports the results of the logistic regression analyses for patients’ likelihood of seeking legal advice. Overall, nondisclosure, life-threatening outcome, and the inadequate monitoring error were all associated with a higher likelihood of seeking legal advice (Table 2). However, a statistically significant 3-way interaction was found (likelihood ratio test vs. full model; $P = 0.04$), again complicating the interpretation of the odds ratios for the main-effects model and suggesting that the effect of disclosure may vary depending on the clinical outcome and the type of error. We therefore constructed 4 separate regression models, 1 for each error and outcome combination (Table 2). The results of these additional analyses suggest that the level of disclosure had little effect on the likelihood of seeking legal advice in 3 of the 4 error-and-outcome situations. However, for the missed allergy and serious outcome situation, those in the nondisclosure situation were much more likely to indicate that they would seek legal advice than those in the full disclosure situation (odds ratio, 6.593 [CI, 2.17 to 19.96]).

Inclusion of age, sex, education, race or ethnicity, personal experience with errors, and personal suffering because of errors resulted in less than a 5% change in the odds ratios reported in Table 2. However, older patients were
less likely to indicate that they would probably change physicians (odds ratio, 0.88 [CI, 0.80 to 0.96]; \( P = 0.003 \); for each 10-year change in age) or seek legal advice (odds ratio, 0.81 [CI, 0.73 to 0.91]; \( P = 0.001 \); for each 10-year change in age).

### Satisfaction, Trust, and Emotional Response

Figure 2 presents the observed means and Table 3 presents the results of the linear regression analyses predicting patient satisfaction, trust in the physician, and patient’s emotional response. Nondisclosure was associated with lower ratings on all 3 dependent measures: lower patient satisfaction, less trust in the physician, and a more negative emotional response. Similarly, the life-threatening clinical outcome was associated with less positive ratings on all 3 dependent measures than the less serious clinical outcome. Error type had a less consistent effect. The inadequate monitoring error was associated with lower trust and more negative emotional response than the missed allergy information error, but there was no difference in patient satisfaction in the 2 error situations. No statistically significant interactions were found for any of the 3 outcomes, suggesting that the effect of each independent variable was consistent regardless of the level of the other independent variables, at least for the conditions studied in this paper.

Inclusion of sex, education, race or ethnicity, personal experience with errors, and personal suffering because of errors in the models resulted in less than a 5% change in the regression coefficients (differences) reported in Table 3. There was a small effect of education on satisfaction, with the college-educated respondents reporting lower satisfaction (\( \beta = -0.1 \) [CI, -0.2 to 0.0]; \( P = 0.05 \)). There was also a small effect of race or ethnicity, with nonwhite respondents reporting greater satisfaction (\( \beta = 0.3 \) [CI, 0.05 to 0.49]; \( P = 0.02 \)). Trust decreased with increasing education.

### Table 2. Predictors of Changing Physicians and Seeking Legal Advice

<table>
<thead>
<tr>
<th>Variable</th>
<th>Agreement, %*</th>
<th>Odds Ratio (95% CI)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Would probably change physicians</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main-effects model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>46.6</td>
<td>1 (reference)</td>
<td>Overall, changing physicians is more likely under nondisclosure, life-threatening outcome, and monitoring error situation.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>63.1</td>
<td>1.958 (1.50–2.56)</td>
<td></td>
</tr>
<tr>
<td>Less serious outcome</td>
<td>44.4</td>
<td>1 (reference)</td>
<td></td>
</tr>
<tr>
<td>Life-threatening outcome</td>
<td>64.8</td>
<td>2.307 (1.77–3.01)</td>
<td></td>
</tr>
<tr>
<td>Missed allergy error</td>
<td>45.7</td>
<td>1 (reference)</td>
<td></td>
</tr>
<tr>
<td>Monitoring error</td>
<td>63.4</td>
<td>2.060 (1.58–2.69)</td>
<td></td>
</tr>
<tr>
<td><strong>Model 1: Monitoring error</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>55.9</td>
<td>1 (reference)</td>
<td>Changing physicians is more likely under nondisclosure and life-threatening outcome for both error situations.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>69.6</td>
<td>1.836 (1.26–2.67)</td>
<td></td>
</tr>
<tr>
<td>Less serious outcome</td>
<td>56.4</td>
<td>1 (reference)</td>
<td></td>
</tr>
<tr>
<td>Life-threatening outcome</td>
<td>68.7</td>
<td>1.724 (1.18–2.51)</td>
<td></td>
</tr>
<tr>
<td><strong>Model 2: Missed allergy error</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>38.0</td>
<td>1 (reference)</td>
<td>See above.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>54.3</td>
<td>2.067 (1.41–3.03)</td>
<td></td>
</tr>
<tr>
<td>Less serious outcome</td>
<td>32.7</td>
<td>1 (reference)</td>
<td></td>
</tr>
<tr>
<td>Life-threatening outcome</td>
<td>59.0</td>
<td>3.086 (2.10–4.53)</td>
<td></td>
</tr>
<tr>
<td><strong>Would probably seek legal advice</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main-effects model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>19.6</td>
<td>1 (reference)</td>
<td>Overall, seeking legal advice is more likely under nondisclosure, life-threatening outcome, and monitoring error situation.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>27.7</td>
<td>1.565 (1.15–2.12)</td>
<td></td>
</tr>
<tr>
<td>Less serious outcome</td>
<td>15.3</td>
<td>1 (reference)</td>
<td></td>
</tr>
<tr>
<td>Life-threatening outcome</td>
<td>34.0</td>
<td>2.850 (2.08–3.90)</td>
<td></td>
</tr>
<tr>
<td>Missed allergy error</td>
<td>16.9</td>
<td>1 (reference)</td>
<td></td>
</tr>
<tr>
<td>Monitoring error</td>
<td>31.2</td>
<td>2.224 (1.63–2.03)</td>
<td></td>
</tr>
<tr>
<td><strong>Model 1: Monitoring error with less serious outcome</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>17.7</td>
<td>1 (reference)</td>
<td>Seeking legal advice is statistically more likely under nondisclosure only for missed allergy error with less serious outcome situation.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>25.1</td>
<td>1.169 (0.63–2.15)</td>
<td></td>
</tr>
<tr>
<td><strong>Model 2: Monitoring error with life-threatening outcome</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>37.9</td>
<td>1 (reference)</td>
<td>See above.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>48.9</td>
<td>1.375 (0.83–2.83)</td>
<td></td>
</tr>
<tr>
<td><strong>Model 3: Missed allergy error with less serious outcome</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>8.8</td>
<td>1 (reference)</td>
<td>See above.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>13.1</td>
<td>6.593 (2.17–19.96)</td>
<td></td>
</tr>
<tr>
<td><strong>Model 4: Missed allergy error with life-threatening outcome</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>21.6</td>
<td>1 (reference)</td>
<td>See above.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>30.0</td>
<td>1.374 (0.77–2.46)</td>
<td></td>
</tr>
</tbody>
</table>

* Model-based percentages.
Patients’ Views on Disclosure of Medical Errors

Table 3. Predictors of Satisfaction, Trust, and Emotional Response

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean†</th>
<th>Difference (95% CI)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient satisfaction*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>3.26</td>
<td>−1.215 (−1.33 to −1.10)</td>
<td>Satisfaction is lower under nondisclosure and life-threatening outcome; type of error did not have an effect.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>2.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less serious outcome</td>
<td>2.78</td>
<td>−0.247 (−0.36 to −0.13)</td>
<td></td>
</tr>
<tr>
<td>Life-threatening outcome</td>
<td>2.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missed allergy error</td>
<td>2.64</td>
<td>0.029 (−0.085 to 0.14)</td>
<td></td>
</tr>
<tr>
<td>Monitoring error</td>
<td>2.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust in the physician*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>3.12</td>
<td>−0.690 (−0.78 to −0.60)</td>
<td>Trust is lower under nondisclosure, life-threatening outcome, and monitoring error.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>2.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less serious outcome</td>
<td>2.92</td>
<td>−0.277 (−0.36 to −0.19)</td>
<td></td>
</tr>
<tr>
<td>Life-threatening outcome</td>
<td>2.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missed allergy error</td>
<td>2.88</td>
<td>−0.209 (−0.30 to −0.12)</td>
<td></td>
</tr>
<tr>
<td>Monitoring error</td>
<td>2.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient emotional response*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure</td>
<td>2.62</td>
<td>−0.556 (−0.68 to −0.44)</td>
<td>Patient emotional response is less positive under nondisclosure, life-threatening outcome, and monitoring error.</td>
</tr>
<tr>
<td>Nondisclosure</td>
<td>2.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less serious outcome</td>
<td>2.58</td>
<td>−0.473 (−0.59 to −0.35)</td>
<td></td>
</tr>
<tr>
<td>Life-threatening outcome</td>
<td>2.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missed allergy error</td>
<td>2.51</td>
<td>−0.334 (−0.45 to −0.21)</td>
<td></td>
</tr>
<tr>
<td>Monitoring error</td>
<td>2.18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Higher scores indicate a more positive response.
† Model-based means.

Table 4. General Opinions and Preferences for Action

<table>
<thead>
<tr>
<th>Statement</th>
<th>Respondents, n</th>
<th>Agreement (95% CI), %*</th>
</tr>
</thead>
<tbody>
<tr>
<td>General statements about medical errors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients should always be told if an error is made—even if the patient is not injured or harmed.</td>
<td>855</td>
<td>91.2 (89.4–93.1)</td>
</tr>
<tr>
<td>Patients should get financial compensation if they were injured or disabled because of a medical error.</td>
<td>778</td>
<td>83.0 (80.6–85.4)</td>
</tr>
<tr>
<td>It is realistic to expect that doctors will make errors.†</td>
<td>756</td>
<td>80.8 (78.2–83.3)</td>
</tr>
<tr>
<td>Patients should take some responsibility for preventing errors.†</td>
<td>657</td>
<td>70.4 (67.5–73.3)</td>
</tr>
<tr>
<td>Patients have a right to expect that their doctors will not make errors.</td>
<td>582</td>
<td>62.2 (59.1–65.3)</td>
</tr>
<tr>
<td>It’s unrealistic to think that a doctor would tell a patient if he or she made an error in the patient’s care.</td>
<td>312</td>
<td>33.5 (30.5–36.6)</td>
</tr>
<tr>
<td>In some situations, it would be best not to tell a patient about a medical error.</td>
<td>143</td>
<td>15.3 (13.0–17.6)</td>
</tr>
<tr>
<td>Patients should get financial compensation if an error was made, even if they were not injured or disabled because of it.</td>
<td>119</td>
<td>12.7 (10.6–14.8)</td>
</tr>
<tr>
<td>There is no point in knowing if an error was made if there’s nothing that can be done about it.</td>
<td>62</td>
<td>6.6 (5.0–8.2)</td>
</tr>
</tbody>
</table>

Preferences for action after a medical error

<table>
<thead>
<tr>
<th>Statement</th>
<th>Respondents, n</th>
<th>Agreement (95% CI), %*</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would want to be told as soon as it was discovered.</td>
<td>930</td>
<td>98.8 (98.1–99.5)</td>
</tr>
<tr>
<td>I would want to know that something was being done to make sure it didn’t happen to someone else.</td>
<td>930</td>
<td>98.7 (98.0–99.4)</td>
</tr>
<tr>
<td>I would want to know the full details of how the error occurred.‡</td>
<td>913</td>
<td>97.1 (96.1–98.2)</td>
</tr>
<tr>
<td>I would want to be told in person rather than on the phone.‡</td>
<td>847</td>
<td>90.0 (88.1–91.9)</td>
</tr>
<tr>
<td>I would want the doctor to tell me that he or she was sincerely sorry.</td>
<td>819</td>
<td>87.6 (85.5–89.7)</td>
</tr>
<tr>
<td>I would want the medical fees related to the error to be waived.‡</td>
<td>800</td>
<td>86.5 (84.3–88.7)</td>
</tr>
<tr>
<td>I would want financial compensation for injury, pain, or suffering.</td>
<td>635</td>
<td>67.8 (64.8–70.8)</td>
</tr>
<tr>
<td>I would want the doctor to be reprimanded by an authority.‡</td>
<td>596</td>
<td>63.9 (60.8–67.0)</td>
</tr>
<tr>
<td>I would want the doctor to be punished (e.g., to be put on probation or to have their license suspended or revoked).</td>
<td>363</td>
<td>38.8 (35.7–41.9)</td>
</tr>
</tbody>
</table>

* Percentages reflect number responding “agree” or “strongly agree” divided by number of usable responses for each item (that is, excluding missing data).
† Chi-square for the independence of error response to this item was statistically significant: Those who read the missed allergy information vignette were more likely to agree than those who read the monitoring error vignette (78.5% vs. 62.3%; P < 0.001).
‡ Chi-square test of the independence of clinical outcome and responses to this item was statistically significant: Those who read the life-threatening outcome vignette were more likely to agree than those who read the less serious outcome vignette (93.5% vs. 86.5%; P < 0.001).
Attitudes, Beliefs, and Preferences about Medical Error and Disclosure in General

Table 4 presents the percentage of respondents agreeing with statements intended to measure beliefs and attitudes about medical errors and disclosure in general. Of interest, almost half of all respondents (46.5%) expressed agreement with 2 apparently incompatible statements (“It is realistic to expect that doctors will make errors” and “Patients have a right to expect that their doctors will not make errors”). Table 4 also presents the percentage of respondents favoring various responses to a medical error, which are ordered from most desirable to least.

DISCUSSION

Our findings suggest that full disclosure after a medical error reduces the likelihood that patients will change physicians, improves patient satisfaction, increases trust in the physician, and results in a more positive emotional response. Full disclosure may also reduce the likelihood that patients will seek legal advice under some, but not all, circumstances. Considering the error or outcome situations studied here, we found that full disclosure had a statistically significant effect on the likelihood of seeking legal advice in only 1 situation (missed allergy error and serious clinical outcome).

Of the 3 independent variables in this study (type of error, severity of clinical outcome, and level of disclosure), only level of disclosure is controlled by the physician once an error is discovered. Our results suggest that physicians can influence the consequences of the disclosure process in a positive way if they disclose fully by explaining what occurred, acknowledging responsibility, apologizing, and promising to work to ensure that the error does not recur. These findings are consistent with the results of a recently published study that used focus groups (36). However, our results also suggest that physicians should not assume that full disclosure guarantees a positive response; patients are also influenced by the clinical outcome and the specifics of the error situation. Again, this is consistent with reports that the characteristics of the injury are influential in determining whether patients pursue litigation (49, 50). Thus, providers should be aware that, under some circumstances, full disclosure could have little effect. The percentage of respondents who agreed that they would seek legal advice was relatively high under some circumstances, which is clear from Table 2 and Figure 2. It is noteworthy, however, that complete disclosure did not increase the likelihood of patients agreeing that they would seek legal advice under any circumstance studied here.

Our findings confirmed that patients want to be told of medical errors, even if there is nothing that can be done about them. Few respondents agreed that some circumstances might justify nondisclosure. These observations are consistent with results of previous studies, in which most patients endorsed disclosure of medical errors (14, 19, 36, 37). Our findings also suggest that financial issues should be addressed when an error results in injury. Most patients would want medical fees associated with an error to be waived, and most favored financial compensation if an injury occurred. Relatively few patients favored compensation when no injury occurred. While we did not directly examine the effect of compensation on the likelihood of seeking legal advice, others have found that patients are more likely to consider legal action if the physician pursues payment when an injury has occurred (49) and that financial pressures (including medical bills associated with the adverse event) may motivate legal action (51).

The finding that almost half of the respondents expressed agreement with 2 seemingly contradictory statements—that “It is realistic to expect that doctors will make errors” and “Patients have a right to expect that their doctors will not make errors”—deserves comment. Although agreement with both statements may seem logically inconsistent, we feel that both beliefs are central to the public’s attitudes about medical errors and that neither should be discounted. Gallagher and colleagues (36) reported similar attitudes among focus group participants who expressed a belief that medical errors are inevitable and that the possibility of experiencing an error in one’s own care was frightening. Similarly, Brodsky and colleagues (52) reported that approximately 50% of survey respondents believed that it was not rare for physicians to make mistakes, but almost all respondents (99.3%) agreed that “People should be able to trust their doctors to give them the right care.”

Our findings make clear that when errors occur, most patients want detailed explanations, a sincere apology, and assurances that steps will be taken to prevent recurrences. At least in the abstract, safety is more important to patients than compensation or punishment. However, almost 4 in 10 respondents favored punishing the physician and an even greater number (more than 6 in 10 respondents) favored reprimanding the physician. It is possible that the impersonal nature of the survey, which did not refer to the respondent’s own physician, was responsible for these relatively high rates of endorsing negative consequences.

Our study has several limitations. Our use of vignettes and dialogues allowed us to systematically vary factors in ways that would be unethical to manipulate in practice. However, this approach assumes that responses to hypothetical situations are predictive of responses to real situations.

Because we drew our sample from a single geographic area, we cannot assess whether our conclusions are valid for other populations. The fact that the study was conducted in the context of a managed care plan may also have affected patients’ perceptions and responses, especially about questions related to cost considerations.

Our findings add to the current knowledge of patients’ beliefs, preferences, and attitudes about medical errors and disclosure but also highlight the need for additional research. Among the many unanswered questions is whether
patients perceive errors as attributable to systems and how this relates to the primacy of the physician—patient relationship. The error events in the vignettes in this study were systems errors (that is, there were several points where systems changes could have prevented the adverse event), but we did not make this explicit to participants. Patients’ responses would probably change if the vignettes stressed the complexity of the system. Future research efforts should consider the effect of such variations on patients’ responses. Consideration of the systems perspective and its implications is also relevant to the disclosure dialogue. We chose to portray the physician as sole communicator in the dialogue with the patient or family member, but such conversations could include people other than or in addition to the physician; patient preferences and responses to such variations should be investigated.

There are several dimensions of the clinical outcome of the error that were not explicitly studied but seem to be influential. Future research should investigate the effect of variables such as the pain associated with the outcome; whether hospitalization, surgery, or therapy is required; whether the injury is temporary or permanent; and the patient’s status before the injury. Several variables probably influence the disclosure process and patients’ responses, including who initiates the conversation, timing of the conversation (relative both to the occurrence of the adverse event and to determination of causality), existence of a previous physician—patient relationship, and financial considerations.

Conventional wisdom suggests that when a patient is harmed by medical error, full disclosure—including acceptance of responsibility, an apology, and an explanation—will result in the best outcomes for both patient and physician. We found that full disclosure incorporating these elements and assurance of efforts to prevent recurrence resulted in more positive outcomes in terms of patient satisfaction, trust, and emotional response and decreased the likelihood of changing physicians. The effect of disclosure on the likelihood of seeking legal advice was more complex, suggesting strong situational influences in this area. Both the clinical outcome of the error and the specifics of the error situation influenced how people respond to medical errors. We conclude that full disclosure fulfills patients’ expectations and may help sustain or strengthen the patient–physician relationship, but it may not prevent litigation under some circumstances.

From the Meyers Primary Care Institute, University of Massachusetts Medical School, and Fallon Foundation, Worcester, Massachusetts; Harvard Medical School and Harvard Pilgrim Health Care, Boston, Massachusetts; HealthPartners Research Foundation, Minneapolis, Minnesota; and Lovelace Clinic Foundation, Albuquerque, New Mexico.

Acknowledgments: The authors thank Andrew Geise and Ryan Tappin for technical assistance and Maureen Mondor and Patricia O’Mara for their support.

Grant Support: By the HMO Research Network Center for Education and Research on Therapeutics (CERTs) (AHRQ U18HS10391-01), the HMO Research Network CERTs Prescribing Safety Program (AHRQ U18HS11843-01), the National Patient Safety Foundation and the Commonwealth Fund (20030288) (Drs. Mazor and Gurwitz), and a Morgan–Zinsser Fellowship from the Academy at Harvard Medical School (Dr. Simon).

Potential Financial Conflicts of Interest: None disclosed.

Requests for Single Reprints: Kathleen M. Mazor, EdD, Meyers Primary Care Institute, 630 Plantation Street, Worcester, MA 01605.

Current author addresses and author contributions are available at www.annals.org.

References
Patients’ Views on Disclosure of Medical Errors


Imagine that you notice a skin infection on your face. You don’t pay much attention at first, but after 2 days it is still there and not getting any better. You make an appointment to see your regular doctor, Dr. H. Dr. H. examines your face and tells you that you will require antibiotic treatment. Dr. H. prescribes dicloxacillin to clear it up. Dr. H. does not ask you whether you have any medication allergies. You are allergic to penicillin. You go to your local pharmacy and get the prescription filled.

The error: Dicloxacillin is a form of penicillin. Dr. H. forgot to ask you whether you were allergic to any drugs and did not check your medical record for any notes regarding allergies to medication. Because you are allergic to penicillin, Dr. H. should not have prescribed this antibiotic. While you remember that you had an allergic reaction to penicillin as a child, you did not mention it since you did not realize that dicloxacillin is a form of penicillin.

Within an hour of taking your first dose of the medicine, you develop hives (itchy red bumps) on your neck, chest, and legs. You call Dr. H.’s office and tell the nurse your symptoms. Dr. H. promptly calls you back and tells you to stop taking the antibiotic. Dr. H. tells you to take Benadryl®, which will stop the hives. Dr. H. also schedules an appointment to see you the next day.

You take the Benadryl®, and when you wake up the next morning, you feel much better. The itchy red bumps have mostly gone away. You keep your appointment with Dr. H. that day anyway, just to be sure everything is fine.

You: If you had asked if I was allergic to penicillin, I would have told you I was.

Dr. H.: Right, and I should have asked. I was concerned about taking care of the infection on your skin, but I should have paid closer attention to your medical record or to asking you. I truly am very sorry that this happened to you. In fact, we have a committee on patient safety here that looks at exactly this type of problem. The first order of business at the next meeting will be to work out a system so that this doesn’t happen again.

You: Was this an allergic reaction? Because I know that I am allergic to penicillin.

Dr. H.: I bet. Rashes can be itchy. It’s too bad that rash developed, but these things happen. People sometimes do get rashes from medications. It is responding to the Benadryl® well though, so I wouldn’t worry about it.

You: Was this an allergic reaction? Because I know that I am allergic to penicillin.

Dr. H.: Good, good. I’m very glad to hear it. The rash looks like it’s almost gone. That Benadryl® I suggested seems to have done the trick. What do you think?

You: Yes, it’s much better. It’s really clearing up.

You: If you had asked if I was allergic to penicillin, I would have told you I was.

Dr. H.: Right. And it’s not unusual for someone to have a reaction like you did, medications do sometimes have side effects or cause reactions that we don’t want. Sometimes it’s unavoidable—someone starts receiving a treatment for one thing, like the infection on your face, and unfortunately the treatment for one problem ends up causing another. It is unfortunate, but it does happen.

You: If you had asked if I was allergic to penicillin, I would have told you I was.

Dr. H.: Right, and I should have asked. I was concerned about taking care of the infection on your skin, but I should have paid closer attention to your medical record or to asking you. I truly am very sorry that this happened to you. In fact, we have a committee on patient safety here that looks at exactly this type of problem. The first order of business at the next meeting will be to work out a system so that this doesn’t happen again.
have any medication allergies. You are allergic to penicillin. You go to your local pharmacy and get the prescription filled.

The error: Dicloxacillin is a form of penicillin. Dr. H. forgot to ask you whether you were allergic to any drugs and did not check your medical record for any notes regarding allergies to medication. Because you are allergic to penicillin, Dr. H. should not have prescribed this antibiotic. While you remember that you had an allergic reaction to penicillin as a child, you did not mention it since you did not realize that dicloxacillin is a form of penicillin.

Within an hour of taking your first dose of the medicine, you develop hives (itchy red bumps), a feeling of throat tightness, and difficulty breathing. Because you are having trouble breathing, you call 9-1-1, and an ambulance takes you to the emergency room.

In the emergency room you are given a number of treatments to help your breathing and relieve the throat tightness. The emergency room doctor tells you that you actually could have died from the reaction to the antibiotic and that you should never take a penicillin-related drug again. You stay in the hospital that night for observation, and on the next morning, Dr. H. visits you in the hospital.

Allergic Reaction: Life-Threatening Outcome: Full Disclosure
Dialogue
Dr. H.: Hello. How are you doing?
You: Not good. It’s been a terrible couple of days.
Dr. H.: I can imagine. I am very sorry to hear what you’ve been through. I’ve talked to the doctor here and looked at your chart, and it seems like you’re doing much better. It looks like you’re going home this morning.
You: I’ll be glad to get out of here. The doctor here said that the medicine I was taking for that infection on my face is like penicillin and that I shouldn’t have taken it since I have an allergy to penicillin. I didn’t know what it was—I wouldn’t have taken it if I had known it was penicillin. You didn’t say that it was like penicillin.
Dr. H.: I didn’t, and I am very sorry that I didn’t. It’s not exactly penicillin, but it is in the same family, so I shouldn’t have prescribed it for you.
You: I know I am allergic to penicillin, but you didn’t ask about any allergies.
Dr. H.: Right, and that was my mistake not to ask you and not to go back and check your chart before I wrote the prescription. This medication is similar to penicillin, so it’s not a surprise that you are allergic to it. When I found out what had happened to you, I went back and checked your record, and it is documented there that you are allergic to penicillin. I feel terrible that you had a reaction and that it was due to my mistake. I’m just thankful you are recovering from it and it’s not going to cause you any permanent harm. But I do feel very badly that it happened to you and that it was because of my mistake.
You: If you had asked if I was allergic to penicillin, I would have told you I was.

Dr. H.: Right, and I should have asked. I was concerned about taking care of the infection on your skin, but I should have paid closer attention to your medical record or to asking you. I truly am very sorry that this happened to you. In fact, we have a committee on patient safety here that looks at exactly this type of problem. The first order of business at the next meeting will be to work out a system so that this doesn’t happen again.

Allergic Reaction: Life-Threatening Outcome: Nondisclosure
Dialogue
Dr. H.: Hello. How are you doing?
You: Not good. It’s been a terrible couple of days.
Dr. H.: I can imagine. I am very sorry to hear what you’ve been through. I’ve talked to the doctor here and looked at your chart, and it seems like you’re doing much better. It looks like you’re going home this morning.
You: I’ll be glad to get out of here. The doctor here said that the medicine I was taking for that infection on my face is like penicillin and that I shouldn’t have taken it since I have an allergy to penicillin. I didn’t know what it was—I wouldn’t have taken it if I had known it was penicillin. You didn’t say that it was like penicillin.
Dr. H.: Well, it is like penicillin in some ways, but it is not penicillin. But you know, every prescription is different and every person is different. Sometimes it’s not possible to predict how a person’s body will react.
You: I know I am allergic to penicillin, but you didn’t ask about any allergies.
Dr. H.: There is a note in your medical record that you have a history of an allergy to penicillin. I checked when I found out what happened, and it is documented.
You: Well, then I shouldn’t have had this medication.
Dr. H.: We know that now. But these things aren’t always predictable. It’s not really unusual for someone to have a reaction to a medication. Medications do sometimes have side effects or cause reactions that we don’t want. Sometimes it’s unavoidable—someone starts on a treatment for one thing, like the infection on your face, and unfortunately the treatment for one problem ends up causing another. It is unfortunate, but it does happen.

Lack of Monitoring of Seizure Medication: Serious Outcome
Vignette
Imagine that your father is in a nursing home. He has a history of seizures and has been on medicine to control the seizures for quite some time. When the nursing home doctor, Dr. H., sees your father for his annual exam, Dr. H. decides that the amount of seizure medication your father has been taking has been a little low. Dr. H. decides to increase your father’s seizure medication and writes an order that he be given a higher dosage. Your father starts on the higher dose. His seizures remain under good control—he still has no seizures—but he starts to have trouble keeping his balance. He begins to need to use a walker to
get around. Over the next 2 weeks, he becomes more and more unsteady.

One morning, your father falls as he is on his way to breakfast in the dining room. The fall is not due to a seizure but is due to the higher dose of seizure medication that is making him unsteady. Your father is sent by ambulance to the emergency room for evaluation.

The error: After increasing your father’s seizure medication, Dr. H. should have monitored your father for potential side effects. If given at too high levels, some seizure medications can cause patients to become unsteady and lose their balance. Thus, a patient taking too much seizure medication may fall and suffer an injury. The doctor should have done a blood test to determine if your father was receiving too much medication.

The doctors at the emergency room determine that your father has a broken nose and 2 black eyes but no serious injuries. They check the blood level of the seizure medication and find it to be very high (in the toxic range). The next day you call Dr. H., the doctor at the nursing home, to find out what happened.

Lack of Monitoring of Seizure Medication: Serious Outcome: Full Disclosure

Dialogue

You: Hello. I’m calling to talk to you about my father. I was told that he fell yesterday and was sent to the ER. They said he’s basically o.k. except for some bruising and a broken nose, but I’d like to know what happened.

Dr. H.: I’m glad you called. Your father did fall yesterday. Unfortunately, I think it may be due to his medication. About 2 weeks ago, I saw your father for his annual exam and at that time I decided to increase his seizure medication because it was low. However, after the fall we checked his blood and found out that your father was getting too much seizure medication. It is likely that the high level of this medication contributed to your father losing his balance and falling.

You: So he fell because you put him on such a high dose of the medicine?

Dr. H.: There may have been other factors involved, but it’s true that the high level of seizure medication probably contributed to the fall. I should have checked your father’s blood level a few days after I increased the dosage to see if it was too high. I might have been able to prevent his fall if I had checked his blood. I was focused on keeping the seizures under control, but I didn’t follow up as I should have. I feel terrible that he fell and that I did not pick up the mistake earlier. I am sorry that it happened.

You: I just worry so much because he is getting older and I can’t be there to take care of him all of the time.

Dr. H.: I understand. It’s hard to watch people age, especially when they have accidents and get hurt. These things are hard to predict. I assure you that we will take good care of him.

Lack of Monitoring of Seizure Medication: Life-Threatening Outcome

Vignette

Imagine that your father is in a nursing home. He has a history of seizures and has been on medicine to control the seizures for quite some time. When the nursing home doctor, Dr. H., sees your father for his annual exam, Dr. H. decides that the amount of seizure medication your father has been taking has been a little low. Dr. H. decides to increase your father’s seizure medication and writes an order that he be given a higher dosage. Your father starts on the higher dose. His seizures remain under good control—he still has no seizures—but he starts to have trouble keeping his balance. He begins to need to use a walker to get around. Over the next 2 weeks, he becomes more and more unsteady.

One morning, your father falls as he is on his way to breakfast in the dining room. The fall is not due to a seizure but is due to the higher dose of seizure medication that is making him unsteady. Your father is sent by ambulance to the emergency room for evaluation.

The error: After increasing your father’s seizure medication, Dr. H. should have monitored your father for potential side effects. If given at too high levels, some seizure medications can cause patients to become unsteady and lose their balance. Thus, a patient taking too much seizure medication may fall and suffer an
injury. The doctor should have done a blood test to determine if your father was receiving too much medication.

When your father gets to the emergency room, he is experiencing severe pain with any movement of his left leg. The emergency room doctors determine that your father’s hip is broken. They also check the level of the seizure medication and find that it is very high (in the toxic range). The fracture will require surgery—inserting a screw and plate into your father’s hip region. Your father survives the operation, but he will need extensive physical therapy in order to walk again.

You are with your father in his hospital room the next day when Dr. H. comes to your father’s room to see how he is doing. You ask him what happened.

Lack of Monitoring of Seizure Medication:
Life-Threatening Outcome: Full Disclosure Dialogue

You: Hi, Dr. H. Thanks for coming by. My dad is really in awful shape.

Dr. H.: I wanted to check and see how things are going. I spoke to the doctors here and they said that the surgery went well.

You: He was in a lot of pain after the fall, and I think he’s still in pain from the hip surgery. I was surprised when I found out that my father got hurt. The whole thing was a bit of a shock to me—he was fine the last time I saw him. Do you know why he fell yesterday?

Dr. H.: Well, about 2 weeks ago, I saw your father for his annual exam and at that time I decided to increase his seizure medication because it was a bit low. However, after the fall we checked his blood and found out that your father was getting too much of his seizure medication. It is likely that the high level of this medication caused your father to lose his balance and fall.

You: So he fell because you put him on such a high dose of the medicine?

Dr. H.: There may have been other factors involved, but it’s true that the high level of seizure medication probably contributed to the fall. I should have checked your father’s blood level a few days after I increased the dosage to see if it was too high. I might have been able to prevent his fall if I had checked his blood. I was focused on keeping the seizures under control, but I didn’t follow up as I should have. I feel terrible that he fell and that I did not pick up the mistake earlier. I am sorry that it happened.

You: I just worry so much because he is getting older and I can’t be there to take care of him all of the time. The surgeon said that if he is going to walk again, he’ll need a lot of physical therapy. I just don’t see how something like this could happen.

Dr. H.: I understand. We will work hard to help your father walk again. I will make sure that he gets the best therapy possible. I assure you that we will take good care of him. In fact, we have a committee on patient safety here that looks at exactly this type of problem. The first order of business at the next meeting will be to work out a system so that this doesn’t happen again.

Lack of Monitoring of Seizure Medication:
Life-Threatening Outcome: Nondisclosure Dialogue

You: Hi, Dr. H. Thanks for coming by. My dad is really in awful shape.

Dr. H.: I wanted to check and see how things are going. I spoke to the doctors here and they said that the surgery went well.

You: He was in a lot of pain after the fall, and I think he’s still in pain from the hip surgery. I was surprised when I found out my father got hurt. The whole thing is a bit of a shock to me— he was fine the last time I saw him. Do you know why he fell yesterday?

Dr. H.: We don’t know exactly what it was that caused the fall. Your father is elderly, he has seizures, and he is on a number of medications. As you know, your father is in a nursing home because he has a lot of problems. There are many things that might have caused the fall or it may have been a combination of factors. Anyway, he seems to be doing a lot better now despite the accident.

You: In the ER, they said that the amount of seizure medication in his blood was very high and that that could have been related to the fall. Do you think that caused the fall?

Dr. H.: It’s hard to tell. As people get older, they become unsteady. A lot of elderly people fall and get hurt. His seizure medication was too low when I saw him, so it was increased to prevent seizures. What caused the fall is really unclear. We really don’t know if the seizure medication was a factor or if he fell for some other reason.

You: I just worry so much because he is getting older and I can’t be there to take care of him all of the time. The surgeon said that if he is going to walk again, he’ll need a lot of physical therapy. I just don’t see how something like this could happen.

Dr. H.: I understand. It’s hard to watch people age, especially when they have accidents and get hurt. These things are hard to predict. At least he’s doing better now. He has a lot of work ahead of him if he’s going to walk again, but we’ll all hope for the best. I will make sure he gets the best therapy possible. I assure you that we will take good care of him.

Current Author Addresses: Drs. Mazor, Yood, and Gurwitz: Meyers Primary Care Institute, 630 Plantation Street, Worcester, MA 01605. Dr. Simon: Harvard Medical School and Harvard Pilgrim Health Care, 133 Brookline Avenue, Sixth Floor, Boston, MA 02215. Dr. Martinson: HealthPartners Research Foundation, 8100 34th Avenue South, PO Box 1524, Minneapolis, MN 55440-1524. Dr. Gunter: Lovelace Clinic Foundation, 2309 Renard Place SE, Suite 103-B, Albuquerque, NM 87106. Dr. Reed: Preventive and Behavioral Medicine, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655.


Provision of study materials or patients: K.M. Mazor.
Statistical expertise: G.W. Reed.
Obtaining of funding: K.M. Mazor.
Collection and assembly of data: K.M. Mazor.