Medical Error Disclosure Among Pediatricians

Choosing Carefully What We Might Say to Parents

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Objective: To determine whether and how pediatricians would disclose serious medical errors to parents.

Design: Cross-sectional survey.

Setting: St Louis, Missouri, and Seattle, Washington.

Participants: University-affiliated hospital and community pediatricians and pediatric residents.

Main Exposure: Anonymous 11-item survey administered between July 1, 2003, and March 31, 2004, containing 1 of 2 scenarios (less or more apparent to the child’s parent) in which the respondent had caused a serious medical error.

Main Outcome Measures: Physician’s intention to disclose the error to a parent and what information the physician would disclose to the parent about the error.

Results: The response rate was 56% (205/369). Overall, 53% of all respondents (109) reported that they would definitely disclose the error, and 58% (108) would offer full details about how the error occurred. Twenty-six percent of all respondents (53) would offer an explicit apology, and 50% (103) would discuss detailed plans for preventing future recurrences of the error. Twice as many pediatricians who received the apparent error scenario would disclose the error to a parent (73% [75] vs 33% [34]; P < .001), and significantly more would offer an explicit apology (33% [34] vs 20% [20]; P = .04) compared with the less apparent error scenario.

Conclusions: This study found marked variation in how pediatricians would disclose a serious medical error and revealed that they may be more willing to do so when the error is more apparent to the family. Further research on the impact of professional guidelines and innovative educational interventions is warranted to help improve the quality of error disclosure communication in pediatric settings.

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Patients want to be told about medical errors that occur in their care.1-5 Specifically, patients want to be told that an error occurred, how and why the error happened, and what will be done to prevent similar errors in the future; they also want to hear a sincere apology.6,7 In addition, professional organizations (American Medical Association in 1981, Joint Commission on Accreditation of Healthcare Organizations in 2001), hospitals, the tenets of patient- and family-centered care, and medical ethicists all espouse disclosure of harmful medical errors.8,9 However, a growing body of research documents a disparity between patients’ desire for open and honest communication and what physicians actually do when faced with disclosing an error.10 Recent studies11 have revealed that physicians’ attitudes vary about when to disclose medical errors and how forthcoming they would be in their disclosure to patients. Studies12 have also suggested that the nature of the error and how apparent the error is to the patient affect physicians’ disclosure of medical errors.

Parents want to be told if an error occurs in the care of their child.13 However, disclosure in the pediatric setting may be more complicated than similar conversations in the adult medical setting. Disclosing an error to one or both parents, and possibly to the child as well, may prove to be an exceptionally challenging conversation. Pediatricians in general appear to be supportive of disclosure of both minor and serious medical errors14; how-
ever, what pediatricians would actually communicate about medical errors with families and what factors influence their disclosure behavior are currently unknown. This study sought to describe, based on how apparent an error was to the parent, whether pediatricians would recognize and disclose the error, how much detail about the error they would provide, whether they would apologize to the family, and whether they would provide information about how such an error could be prevented in the future.

### METHODS

**SURVEY CONTENT**

Attending physicians and pediatric residents affiliated with Washington University/BJH Health Care in St Louis, Missouri, completed a mail-in or Web-based anonymous survey between July 1, 2003, and March 31, 2004. The Washington University institutional review board approved the survey and study methods.

This study used a subset of questions (11 of 68) from a broader survey that explored pediatricians' attitudes, experiences, and patterns of behavior regarding recognition of, reporting, and disclosing medical errors. The broader survey included pediatricians in the Seattle, Washington, and St Louis areas. Because of a distribution error in which the Seattle recipients received scenarios that involved adult patients rather than pediatric patients, the surveys from Seattle were ineligible for inclusion in this analysis. Respondents randomly received 1 of 2 serious error scenarios (eFigure; http://www.archpediatrics.com). The first scenario, an insulin overdose that resulted in an intensive care unit admission for the child, was designed to reflect an error that would be more apparent to the parents of the child. The second scenario, which involved failure to follow up on a laboratory test that resulted in symptomatic bacteremia and subsequent hospitalization of the child, was designed to simulate an error that would be less apparent to the parents of the child. Definitions of medical error (the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim), minor error (error that causes harm that is neither permanent nor life-threatening), and serious error (error that causes permanent injury or transient but life-threatening harm) were provided at the bottom of each survey page. The survey was pilot tested through cognitive interviews with practicing pediatricians to ensure clarity and realism of the scenarios and plausibility of the disclosure options.

For both scenarios, respondents were asked identical questions about the severity of the error, how responsible the physician was for the error, and whether the family should be told about the error (survey questions 11-14). In addition, respondents answered 5 questions about their communication with the child's family regarding the error: (1) what would you most likely say about what happened; (2) how much detail would you most likely give the patient's family about the error; (3) what most closely resembles what you would say about the cause of the error; (4) what would you most likely say regarding an apology; and (5) what would you most likely say about how the error would be prevented in the future (encompassing survey questions 15-25). Each question was accompanied by scripted responses that reflected no, partial, and full disclosure. Demographic questions (separate from the 11 questions noted herein) included respondents' age, sex, level of training, academic or private practice affiliation, and distribution of time spent in hospital-based practice.

### STATISTICAL ANALYSIS

Descriptive statistics were computed for demographic variables. Questions with 4-choice Likert scales were either dichotomized at the midpoint or were grouped by responses of comparable quality (eg, responses of “very likely” and “extremely likely” were combined). Responses to the 2 scenarios first were aggregated to explore general trends. Then responses to the insulin overdose (more apparent serious error) were compared with responses to the missed antibiotic sensitivity (less apparent serious error). The effect of prior experience with disclosure and the effect of prior disclosure training on disclosure choices in the scenarios were also explored. Proportions were computed with the $\chi^2$ test or $\chi^2$ test for trend and the Fisher exact test where appropriate. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated to compare the impact of disclosure training, or prior disclosure experience, on disclosure choices in the scenarios. Two-tailed tests with $P < .05$ were used throughout the analyses for establishing statistical significance. Analyses were performed with commercially available software programs (SAS, version 9.0; SAS Institute Inc, Cary, North Carolina; and Prism 4; GraphPad Software Inc, San Diego, California) for the Macintosh computer.

### RESULTS

**STUDY POPULATION**

Pediatric attending physicians (n=176) and trainees (n=29) responded to the survey (205/369, 56% response rate, Table 1). Ninety-three (53%) of the 176 attending pediatricians surveyed were in private practice. One hundred fourteen attending pediatricians (63%)...
spend most of their time in clinical practice, and the majority (85%) spent at least one-quarter of their time caring for hospitalized patients. Fourteen trainees (48%) spent at least three-quarters of their time in clinical practice. The mean (SD) duration of practice was 14 (10.3) years for the attending physicians and 2.7 (0.6) years for the trainees. Unless otherwise indicated, no statistically significant differences were found between attending pediatricians and trainees.

**GENERAL TRENDS REGARDING DISCLOSURE**

Overall, 161 respondents (79%) described the error (insulin overdose or missed antibiotic sensitivity scenario) as serious, and 171 (83%) reported that they would feel very to extremely responsible for the error (Table 2). Of all respondents, 91 (44%) reported that they would feel very to extremely upset about the error, and 69 (34%) reported believing that it was very to extremely likely that they would be sued because of the error. Among all respondents, 109 (53%) reported that they would definitely disclose the error, 40% (82) would probably disclose, and 7% (14) would disclose the error only if asked by the parent. When choosing a disclosure statement, 46% (95) of all respondents would choose one that included the word “error” in their explanation of the event, 59% (121) would choose one that provided an explicit description about how the error occurred, and 40% (82) would choose a disclosure statement that reflected a detailed description of why the error occurred. Twenty-six percent of all respondents (54) would choose a disclosure statement that included an explicit apology that acknowledged the harm caused to the child, and 50% (103) reported that they would choose responses that included discussion of detailed plans for preventing future recurrences of the error. Previous experience disclosing a serious error to a family increased the likelihood that respondents would choose a disclosure statement that included an explicit description of how the error occurred (OR, 3.10; 95% CI, 1.7-5.8) and the likelihood that they would choose a disclosure statement that reflected a detailed description of why the error occurred (OR, 2.03; 95% CI, 1.1-3.6). Previous training in error disclosure did not increase the likelihood that respondents would disclose the scenario error (OR, 0.72; 95% CI, 0.40-1.30).

**COMPARISON OF DISCLOSURE BETWEEN INSULIN OVERDOSE AND MISSED ANTIBIOTIC SENSITIVITY SCENARIOS**

Of all respondents who received the insulin overdose scenario, 92 (89%) considered it to be a serious error vs 69 (68%) who received the missed antibiotic sensitivity scenario (P < .001) (Table 2). With the missed antibiotic sensitivity scenario, respondents who received the insulin overdose scenario were less likely to report feeling very to extremely responsible for causing the error (77 [75%] vs 94 [92%]; P < .001) and were much more likely to believe that they would be sued (50 [49%] vs 19 [19%]; P < .001). Respondents who received the insulin overdose scenario were more likely to disclose the error to a parent (73 [73%] vs 33 [33%]; P < .001) (Figure) and provide full details about what happened (63 [60%] vs 32 [32%]; P < .001) compared with respondents who received the missed antibiotic sensitivity scenario (Table 3). Re-

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**Table 2. Respondents’ Experiences of the Error**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall (N=205)</th>
<th>More Apparent Error (Insulin Scenario) (n=103)</th>
<th>Less Apparent Error (Antibiotic Scenario) (n=102)</th>
<th>P Value (Insulin vs Antibiotic Scenario)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated event as serious error</td>
<td>161 (79)</td>
<td>92 (89)</td>
<td>69 (68)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Reported feeling very to extremely responsible for the error</td>
<td>171 (83)</td>
<td>77 (75)</td>
<td>94 (92)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Reported feeling very to extremely upset about the error</td>
<td>195 (95)</td>
<td>103 (100)</td>
<td>92 (90)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Reported feeling very to extremely concerned that reputation would be damaged because of the error</td>
<td>91 (44)</td>
<td>51 (50)</td>
<td>40 (39)</td>
<td>.14</td>
</tr>
<tr>
<td>Reported that they thought it was likely that they will be sued because of the error</td>
<td>69 (34)</td>
<td>50 (49)</td>
<td>19 (19)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Reported that they would disclose the error to the patient’s family</td>
<td>109 (53)</td>
<td>75 (73)</td>
<td>34 (33)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulin overdose</th>
<th>Missed antibiotic sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only If Asked by the Parent</td>
<td>14</td>
</tr>
<tr>
<td>Probably Disclose</td>
<td>26</td>
</tr>
<tr>
<td>Definitely Disclose</td>
<td>73</td>
</tr>
</tbody>
</table>

**Figure.** Respondents’ answers to the question, “How likely would you be to disclose this error to the parents?” (P < .001).

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The past decade has seen a rapid increase in attention to, prevention of, and mitigation of medical errors and, more recently, to when and how to explain these errors to the patients who experience them. A growing body of evidence in the adult medicine literature describes a “gap” between the information patients desire to receive about an error and the information physicians provide them. Conducting error disclosure conversations is admittedly among the most challenging conversations a pediatrician can experience and may be defined by unique features distinctive from error disclosure in the adult setting. Disclosing a medical error in the pediatric setting may be complicated by the need to accommodate the varying level of competence and cognition of a child harmed by the event and by the possibility that one will be communicating with a surrogate rather than the harmed individual. Furthermore, children may be seen as more helpless than adults, potentially adding another layer of self-recrimination to the physician who discloses an error to the affected family. How an error ultimately affects the long-term physical and intellectual development of a child may not be fully evident for many years after the error and may be difficult to predict at the time the error occurs. Finally, the statute of limitation for harm to a child is notably long, potentially fueling a physician’s reluctance to disclose the error to the family.

This study, the first to our knowledge to describe how pediatricians might disclose an error to families, found marked variation regarding intention to disclose the error scenarios and in the content of possible disclosure statements, suggesting that considerable uncertainty remains among pediatricians about when and how to disclose an error. In addition, the disclosure statements chosen often represented less than complete disclosure communication, a practice that is not consistent with current disclosure guidelines and patient preferences for being told full and complete details about an error in as timely a fashion as possible. Similar error disclosure practices have been described in the medical literature and in the general media, indicating that a significant proportion of physicians may not be routinely reporting errors to patients. Such wide practice variation suggests that there are opportunities for quality improvement in error disclosure, specifically in the development of safe disclosure practices and promulgation of professional guidelines and standards.

In the hypothetical error scenarios presented in this study, how apparent an error would be to the parent influenced whether pediatricians would disclose an error to families, found marked variation regarding intention to disclose the error scenarios and in the content of possible disclosure statements, suggesting that considerable uncertainty remains among pediatricians about when and how to disclose an error. In addition, the disclosure statements chosen often represented less than complete disclosure communication, a practice that is not consistent with current disclosure guidelines and patient preferences for being told full and complete details about an error in as timely a fashion as possible. A similar error disclosure practice has been described in the medical literature and in the general media, indicating that a significant proportion of physicians may not be routinely reporting errors to patients. Such wide practice variation suggests that there are opportunities for quality improvement in error disclosure, specifically in the development of safe disclosure practices and promulgation of professional guidelines and standards.

In the hypothetical error scenarios presented in this study, how apparent an error would be to the parent influenced whether pediatricians would disclose the error, how much information they would provide about the events that led to the error, whether an apology would be offered, and how much detail they would offer regarding prevention of the error in the future. Framing the decision to disclose an error based on whether the patient or family is aware of the error is in conflict with standards established by the Joint Commission on Accreditation of Healthcare Organizations and raises challenging ethical questions regarding truth-telling in medicine. A similar effect has been described in a large sample of surgeons and medical specialists, suggesting that this practice may be common across medical specialties.
The role and content of an apology offered while disclosing an error are controversial, although experts agree that any apology should be grounded in sincerity and reflect individual and institutional compassion for the harm experienced by the patient.17 Reluctance to apologize for and take responsibility for an error may be attributable to a physician’s fear of malpractice suits or other negative sequelae. Thirty-four states now provide varying degrees of protection for all or part of an apology from being used as evidence in the legal discovery process, although these statutes may not eliminate the risk that the disclosure will trigger litigation.23 In the case of pediatricians, whether an apology should be offered to the child and how such an apology should be crafted or delivered are unknown and deserve further investigation.

A growing number of hospitals and pediatric medical centers and 1 professional physician organization (American College of Emergency Physicians) have adopted error disclosure policies in an effort to guide physician behavior regarding disclosure of medical errors.24 These policies in general recommend (1) an open and honest description of the events as soon as possible, (2) a sincere apology that recognizes the harm that occurred, (3) identification of the processes that led to the occurrence, and (4) a description of what was learned from the situation (eg, a description of the steps that will be taken to prevent the event from recurring).18,25 However, effective training strategies to help undergraduates, graduate-level trainees, and practicing physicians become more adept at error disclosure have not yet been established.26-28 The National Quality Forum recently released a new Safe Practice on disclosure that is linked to both public reporting and pay-for-performance programs, an approach that may encourage institutions to make significant improvements in their disclosure practices and policies.29,30 Although local institutional policies foster an environment that is favorable for the development of disclosure skills, ultimately, vertical integration of error disclosure training into medical education from the undergraduate through the postgraduate level is needed. Principles of adult learning suggest that these strategies will need to include opportunities for trainees to practice disclosure and receive feedback, as well as the opportunity to observe supervising physicians role modeling appropriate disclosure skills.

This study has several limitations. The data in this study are self-reported, and the response options provided in these scenarios may not include what individual physicians might actually say in a real situation. This study relied on hypothetical scenarios rather than actual experiences to elicit likely individual disclosure behaviors; respondents may be more forthcoming in actual clinical practice, although the current literature suggests the opposite is true.31 Furthermore, the use of scenarios allows all respondents to be exposed to comparable stimuli, and these scenarios and responses were pilot tested with practicing physicians to ensure realism. It is possible that factors other than how apparent the error was to the family also influenced respondents’ disclosure decisions, such as the degree of responsibility the physician felt for causing the error. This study was performed in 1 geographic area, potentially limiting generalizability. In addition, although this survey was anonymous, respondents may have been influenced by social desirability in their answers, in which case our results would overestimate the degree of candor and detail pediatricians would actually provide in disclosing errors. The response rate of this study was robust; however, nonresponse bias could affect our results. Finally, the proportion of pediatric residents and subspecialty fellows in this study was low compared with attending physicians, which may obscure any significant differences attributable to level of training.

In conclusion, the relationship among a pediatrician, a child, and a family is steeped in trust, a commodity that can be significantly diminished by the occurrence of a medical error. In this context, disclosing a medical error to a child and family can be remarkably challenging. Nevertheless, parents have clearly articulated a desire to be told about errors in the medical care of their children. This study demonstrated marked variation in when and how pediatricians might disclose medical errors and found that they may be less likely to disclose an error that was less apparent to the family. Further research on the impact of professional guidelines and innovative educational interventions is warranted to help diminish the disparity between patient preferences for disclosure and current professional behavior.

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Author Contributions: Dr Loren had full access to all of the data in the study and takes full responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Garbutt, Brownstein, Klein, Dunagan, Fraser, and Gallagher. Acquisition of data: Garbutt, Brownstein, Klein, Fraser, and Gallagher. Analysis and interpretation of data: Loren, Garbutt, Klein, Kraus, and Gallagher. Drafting of the manuscript: Loren, Garbutt, Klein, Kraus, and Gallagher. Critical revision of the manuscript for important intellectual content: Loren, Klein, Garbutt, Gallagher, Brownstein, Dunagan, and Fraser. Statistical analysis: Krauss. Obtained funding: Brownstein, Dunagan, Fraser, and Gallagher. Administrative, technical, or material support: Klein, Dunagan, and Fraser. Study supervision: Dunagan and Fraser.

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Additional Information: The eFigure is available at http://www.archpediatrics.com.

Additional Contributions: Alison Ebers, BS, and Kerry Bommarito, MPH, assisted in the preparation of the Web-based survey instrument, physician recruitment, and data entry.


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