How surgeons disclose medical errors to patients: A study using standardized patients

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Background. Calls are increasing for physicians to disclose harmful medical errors to patients, but little is known about how physicians perform this challenging task. For surgeons, communication about errors is particularly important since surgical errors can have devastating consequences. Our objective was to explore how surgeons disclose medical errors using standardized patients.

Methods. Thirty academic surgeons participated in the study. Each surgeon discussed 2 of 3 error scenarios (wrong-side lumpectomy, retained surgical sponge, and hyperkalemia-induced arrhythmia) with standardized patients, yielding a total of 60 encounters. Each encounter was scored by using a scale developed to rate 5 communication elements of effective error disclosure. Half of the encounters took place face-to-face; the remainder occurred by videoconference.

Results. Surgeons were rated highest on their ability to explain the medical facts about the error (mean scores for the 3 scenarios ranged from 3.93 to 4.20; maximum possible score, 5). Surgeons used the word error or mistake in only 57% of disclosure conversations, took responsibility for the error in 65% of encounters, and offered a verbal apology in 47%. Surgeons acknowledged or validated patients’ emotions in 55% of scenarios. Eight percent discussed how similar errors would be prevented, and 20% offered a second opinion or transfer of care to another surgeon.

Conclusions. The patient safety movement calls for disclosure of medical errors, but significant gaps exist between how surgeons disclose errors and patient preferences. Programs should be developed to teach surgeons how to communicate more effectively with patients about errors. (Surgery 2005;138:851-8.)

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Error disclosure is desired by patients, endorsed by ethicists and professional organizations, and increasingly required by regulatory and government bodies.1-4 In the United States, accreditation standards now require that patients be informed about unanticipated outcomes in their care.5 Policy makers and professional organizations have adopted policies encouraging or mandating full disclosure of errors.6,7 However, a significant gap exists between strong support for the principle of error disclosure and actual clinical practice.2,3,8 In a recent survey, only 30% of physicians who had experienced a harmful medical error in their own health care reported that health care personnel had disclosed the error and apologized.9 The failure to communicate effectively with patients after a harmful error may diminish patient trust and satisfaction, and potentially enhance the likelihood of litigation.4,10-13 Efforts to improve disclosure face multiple barriers, including physicians’ fear of malpractice litigation, discomfort in facing angry patients, and concern about potential damage to their
METHODS

An alternative to studying actual disclosure conversations is to analyze how surgeons disclose errors to standardized patients (SPs). The standardized patient methodology is commonly used in medical education and is a well-validated technique for assessing clinical and interpersonal skills. Because surgeons are not concerned about legal liability when discussing hypothetical errors with standardized patients, this approach removes a commonly cited barrier to disclosure, and thus is especially well suited to measuring surgeons’ disclosure skills.

We assessed how 30 practicing surgeons disclosed 3 different errors to SPs. We focused our study on surgical errors since surgical errors are relatively common and can be catastrophic.

METHODOLOGY

Each of the 30 surgeons was assigned randomly to meet with SPs portraying 2 of the 3 error scenarios described below. Half of the surgeon-SP encounters took place face-to-face, while the remainder occurred by videoconference. In prior work, the investigators found that videoconferenced SPs were a feasible and well-accepted approach for assessing surgeons’ communication skills. The scenarios were pilot tested by using surgical residents and practicing surgeons until the SPs could accurately portray the scenarios and reliably rate the surgeons’ performance. SPs were instructed to press for more information once or twice if they felt the explanation of why the error occurred was inadequate.

Thirty full-time academic surgeons participated in the study between June 2003 and January 2004. Subjects were volunteers from the Departments of Surgery at the University of Toronto and Washington University in St. Louis. The median age of the subjects was 41 years. The surgeons were predominantly male (83%) and had been in practice for a median of 7 years (range, 6 months to 32 years). The majority (87%) stated they had previously disclosed an error to a patient. The surgeons were mainly general surgeons (n = 16), but also included orthopedics (n = 4), plastics (n = 3), vascular (n = 3), surgical oncology (n = 3), and thoracic surgeons (n = 1).

Each surgeon saw 2 SPs during a session. Thirteen of the surgeon-SP sessions were conducted in the face-to-face setting in Toronto. Seventeen sessions took place long distance by videoconferencing, in which surgeons in St. Louis and SPs in Toronto could see and interact with each other on the television screen.

Error disclosure rating scale. To develop the error disclosure rating scale, we reviewed the literature on physician-patient communication, disclosure of bad news, patient-centered care, and recommendations by ethicists on error disclosure. In addition, our previous work explored patients’ needs for information and emotional support after an error. We synthesized the aforementioned literature to create our error-disclosure rating scale.

The 5 main rated elements were (1) explanation of medical facts regarding the error, (2) honesty and truthfulness, (3) empathy, (4) discussion of how future errors would be prevented, and (5) general communication skills. Each item was rated on a 5-point scale (1 to 5). All raters scored their overall impression of the error disclosure. The specific elements of effective error disclosure and the rationale for their inclusion are listed in Table II.

The standardized patients completed the rating form immediately after each encounter. One of the investigators then completed a second rating form for each encounter while viewing the videotape of the surgeon-SP visit. After the initial analyses, the investigators determined the following specific communication elements to be especially important:
Whether the surgeon explained the error clearly, used jargon, said certain words to describe the error (error, mistake, or complication), took responsibility for the error, apologized, described plans for error prevention, validated the patient’s feelings, and offered a second opinion. All videotapes were re-reviewed by one of the investigators (D.K.C.) to document the frequency of each of these specific communication elements.

**Statistical analysis.** Sixty SP-surgeon interactions were analyzed by using the mean of the SP and physician rater’s score. The 5-item aggregate scores and the overall impression scores were compared between face-to-face and videoconferencing with 1-way analysis of variance. Inter-rater reliability was calculated with the Spearman rank correlation coefficient, and internal consistency was measured by Cronbach’s alpha. The Mann-Whitney U test was used to compare the surgeons’ ratings of the error disclosure experience between face-to-face and videoconferencing media. SPSS statistical software (SPSS, Inc, Chicago, Ill) was used for all analysis.
Table II. Criteria for effective error disclosure and their rationale for inclusion

<table>
<thead>
<tr>
<th>Communication element</th>
<th>Rationale for inclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation of facts regarding the error</td>
<td>Bioethical principles(^6)</td>
</tr>
<tr>
<td>• Told me what the error was in my care</td>
<td></td>
</tr>
<tr>
<td>• Explained to me why the error occurred</td>
<td>Patient-centered care(^27)</td>
</tr>
<tr>
<td>• Told me how the error impacted my health care</td>
<td>Patients’ preferences for disclosure(^2),(^8)</td>
</tr>
<tr>
<td>• Told me how the consequences of the error will be corrected</td>
<td></td>
</tr>
<tr>
<td>Honesty and truthfulness</td>
<td>Bioethical principles(^6)</td>
</tr>
<tr>
<td>• Took responsibility for the error</td>
<td>Patient-centered care(^27)</td>
</tr>
<tr>
<td>• Explained the error to me freely and directly, without me having</td>
<td>Patients’ preferences for disclosure(^2),(^8)</td>
</tr>
<tr>
<td>to ask a litany of probing questions to get the details of the</td>
<td></td>
</tr>
<tr>
<td>error</td>
<td></td>
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<tr>
<td>• Did not keep things from me that I should know</td>
<td></td>
</tr>
<tr>
<td>• Did not avoid my questions (not evasive)</td>
<td></td>
</tr>
<tr>
<td>Empathy</td>
<td>Disclosure of bad news(^28)</td>
</tr>
<tr>
<td>• Said he/she was sorry and apologized in a sincere manner</td>
<td>Patient-centered care(^27)</td>
</tr>
<tr>
<td>• Allowed me to express my emotions regarding the error</td>
<td>Patients’ preferences for disclosure(^2),(^8)</td>
</tr>
<tr>
<td>• Told me that my emotional reaction was understandable</td>
<td></td>
</tr>
<tr>
<td>Prevention of future errors</td>
<td>Patients’ preferences for disclosure(^2),(^8)</td>
</tr>
<tr>
<td>• Told me that an effort will be made to prevent a similar error in the future</td>
<td></td>
</tr>
<tr>
<td>• Told me what he/she would have done differently</td>
<td></td>
</tr>
<tr>
<td>• Told me his/her plan for preventing similar errors in the future</td>
<td></td>
</tr>
<tr>
<td>General communication skills</td>
<td>Physician-patient communication</td>
</tr>
<tr>
<td>• Degree of coherence in the interview</td>
<td>Patient-centered care(^27)</td>
</tr>
<tr>
<td>• Verbal expression</td>
<td></td>
</tr>
<tr>
<td>• Non-verbal expression</td>
<td></td>
</tr>
<tr>
<td>• Responded to my needs</td>
<td></td>
</tr>
<tr>
<td>• Checked for my understanding of the information he/she provided</td>
<td></td>
</tr>
</tbody>
</table>

The American Board of Medical Specialties, and the Agency for Healthcare Research and Quality had no role in study design or in interpretation or presentation of results.

RESULTS

Inter-rater reliabilities of the 5-item aggregate and overall impression scores between SP and physician raters were good to excellent (.58 to .83). Internal consistencies of the rating scale were moderate to high (.42 to .84). Both inter-rater reliabilities and internal consistencies were similar between the 2 media. Differences in the individual item scores, the 5-item aggregate scores, and the overall impression scores were not significant between the face-to-face and videoconferencing subjects for all 3 scenarios. Also, the surgeons’ overall approach to disclosure did not vary significantly across the 3 cases. Therefore, the results are presented in aggregate for the 60 interactions.

Surgeons’ scores on individual items (Table III). Surgeons’ scores varied widely in all 3 scenarios. Surgeons’ total scores across both scenarios could range from 10 (ineffective performance in all 5 key domains for both scenarios) to 50 (excellent performance in all 5 domains for both scenarios). Of the 30 surgeons, 23% performed very well, with total scores of 40 or above. However, 23% of surgeons achieved total scores of 32 or below, failing to perform roughly as many basic disclosure skills as they successfully demonstrated.

Explanation of medical facts regarding the error. Among the 5 elements for error disclosure, surgeons scored best on their ability to explain the medical facts about the error in all 3 scenarios. The mean scores were 4.15 (range, 3-5) for the wrong-side lumpectomy case, 4.20 (range, 3-5) for the retained surgical sponge case, and 3.93 (range, 2-5) for the hyperkalemia case. Typically, they explained the error clearly, using language that could be understood by patients and avoiding jargon. Surgeons also provided considerable detail about the consequences of the error and how they planned to correct the problem.

However, surgeons were less consistent in explicitly stating that the adverse event was an error. Surgeons used the word error or mistake in only 57% (34/60) of cases. Other words such as complication...
or problem were used as the sole descriptor of the event in 27% (16/60) of cases, and, in 16% (10/60) of cases, surgeons said nothing to suggest that the adverse event was preventable. One surgeon said the following:

certainly I would not have foreseen this complication in your case. we took our usual precautions to prevent this [leaving the sponge in] from happening and unfortunately it was not successful in your case. Despite the best efforts... sometimes these types of things happen.

Honesty and truthfulness. Surgeons scored second highest in the element of honesty and truthfulness, except in the surgical sponge scenario (Table III). The mean scores on this item were 4.13 (range, 3-5) for the wrong-side lumpectomy case, 3.88 (range, 3-5) for the retained surgical sponge case, and 3.85 (range, 2-5) for the hyperkalemia-induced arrhythmia case. Most surgeons disclosed the error in an open and straightforward manner. Surgeons clearly took responsibility for the error in 65% (39/60) of cases. A typical statement of responsibility was as follows: “I have to take the full blame for [leaving the sponge in] since I’m the surgeon performing your surgery.”

The surgeons took responsibility least often in the retained surgical sponge scenario (50%) and most often in the hyperkalemia-induced arrhythmia scenario (85%). However, the surgeons usually admitted responsibility in the hyperkalemia case only after the SP pressed for further details about the error:

SP: “I guess I still don’t understand what happened. Wasn’t anyone monitoring the levels...?”
Surgeon: “Your potassium was monitored; however, I have to apologize that was my mistake for not checking it the day before you went into the ICU.”

Surgeons sometimes identified laboratory personnel and/or nurses as contributors to the error. In the retained surgical sponge case, the nursing staff was frequently implicated:

The nurses count [the sponges] at the beginning and count them at the end.... The count was not correct in the sense that there was one sponge they thought was accounted for that was actually still in the abdomen.

In addition, the patient or the operation itself was sometimes cited as the cause of the error: “It was not an easy operation... you’re fairly large and the spleen was large, it made [the operation] somewhat more difficult...”

Empathy. In all 3 scenarios, surgeons received the second lowest scores in expression of empathy. The mean scores were 3.65 (range, 2-5) for the wrong-side lumpectomy case, 3.83 (range, 2-5) for the retained surgical sponge case, and 3.58 (range, 1-5) for the hyperkalemia-induced arrhythmia case. Surgeons offered a verbal apology in 47% (28/60) of cases. The apology most commonly referred explicitly to the circumstances of the error: “I do apologize on behalf of myself and the surgical team for leaving the sponge in...”

Sometimes, however, surgeons phrased an apology in a manner that did not express empathy for the distressing error the patient had experienced: “I’m sorry that I have to tell you this...”

Surgeons attempted to acknowledge or validate the patients’ emotions about the error in 55% of cases. Typical validation statements included:

The fact that you’re upset about this is normal and understandable... I realize that this is terrible and upsetting, and I’d like to do whatever I can to try to make it as easy to get through the next day as quickly as possible.

Prevention of future errors. Scores on discussion of the prevention of future errors were significantly lower than all other items (P < .05 for all comparisons). The mean scores were 2.30 (range, 1-5) for the wrong-side lumpectomy case, 1.75 (range, 1-5) for the retained surgical sponge case, and 2.40 (range, 1-5) for the hyperkalemia-induced arrhythmia case. Surgeons told the patient that the error would be reviewed and changes would be made to

Table III. Mean item, 5-item aggregate, and overall impression scores ± SD of all surgeons by case

<table>
<thead>
<tr>
<th>Error case</th>
<th>Explanation of medical facts</th>
<th>Honesty and truthfulness</th>
<th>Empathy</th>
<th>Prevention of future errors</th>
<th>General communication skills</th>
<th>5-Item aggregate score*</th>
<th>Overall impression score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong-side lumpectomy (n = 20)</td>
<td>4.15 ± .43</td>
<td>4.13 ± .74</td>
<td>3.65 ± .76</td>
<td>2.30 ± 1.53</td>
<td>4.00 ± .61</td>
<td>18.23 ± 2.67</td>
<td>3.75 ± .72</td>
</tr>
<tr>
<td>Retained surgical sponge (n = 20)</td>
<td>4.20 ± .59</td>
<td>3.88 ± .74</td>
<td>3.83 ± .67</td>
<td>1.75 ± 1.25</td>
<td>4.08 ± .44</td>
<td>17.73 ± 2.17</td>
<td>3.78 ± .60</td>
</tr>
<tr>
<td>Hyperkalemia-induced arrhythmia (n = 20)</td>
<td>3.93 ± .63</td>
<td>3.85 ± .98</td>
<td>3.58 ± .73</td>
<td>2.40 ± 1.37</td>
<td>3.78 ± .60</td>
<td>17.52 ± 3.55</td>
<td>3.48 ± .75</td>
</tr>
</tbody>
</table>

*Minimum score, 5; maximum score, 25.
ensure that a similar error would not happen in the future in only 8% (5/60) of cases as illustrated here:

We can look back ... and try to learn from mistakes and problems. I'll be reviewing this with my surgical colleagues, I'll be discussing this openly at our rounds as a mistake... hopefully we'll develop better systems that would prevent the next patient from having this...

General communication skills and additional observations. The mean general communication skills scores were 4.00 (range, 3-5) in the wrong-side lumpectomy case, 4.08 (range, 4-5) in the retained surgical sponge case, and 3.78 (range, 3-5) in the hyperkalemia-induced arrhythmia case. However, very few surgeons checked to see if the patient understood the error and its consequences. In addition, only 20% of surgeons explicitly acknowledged that the error might result in loss of confidence in them as a provider and offered to help the patients seek a second opinion from or transfer of care to another surgeon:

It would be normal and natural if you would not continue to have confidence in me and would want me to organize another one of my colleagues to look after you... and I'll do it with some sense of urgency and expediency. On the other hand, of course, if you want me to look after you I'll be happy to look after you and continue to do my best for you.

Surgeon feedback on the SP experience. Ninety-three percent of surgeons rated the SPs' portrayal as realistic, and 85% agreed that the error scenarios were realistic. Ninety-three percent rated the SP session as a very good or excellent educational experience, and all agreed that they would recommend this experience to their colleagues. These ratings did not differ significantly between the 2 media. All surgeons who participated by videoconferencing agreed that they were comfortable with the interaction, and 94% stated that the experience was similar to a face-to-face interview and that their behavior was typical.

COMMENT

Surgeons face a difficult dilemma when deciding whether and how to disclose a harmful error to a patient. Our study, the first to assess how surgeons currently disclose harmful errors to patients, suggests that surgeons vary widely in their approach to this difficult task. In many cases, surgeons failed to use recommended error disclosure skills, such as explicitly stating that an error took place, apologizing, and discussing plans for error prevention. These disclosure shortcomings were present in each of the 3 error vignettes representing different levels of surgeon responsibility for the error. Such deficiencies are even more noteworthy since they were observed in a setting where surgeons would have no reason to fear a lawsuit. In a real setting, surgeons’ behavior would likely diverge even further from patients’ wishes.

Patients desire a consistent set of information after a harmful error: an explicit statement that an error occurred, what the error was, why the error happened, how the error will impact their health, how recurrences will be prevented, and an apology. To meet patients’ expectations for disclosure, surgeons must first state clearly that the event in question was an error. However, in almost half of these encounters, surgeons did not use the words error or mistake. Surgeons’ reluctance to state explicitly that an error occurred may in part reflect the advice they commonly receive from risk managers that error disclosure not include any statements that could constitute an admission of liability. Yet an explicit statement that an error took place is especially important in the surgical setting, where patients might incorrectly assume that the event was merely a complication and not in fact preventable. Surgeons’ failure to communicate clearly about medical errors can make patients feel angry and misled, feelings that frequently contribute to the decision to file a malpractice claim.

Underlying patients’ preferences for the content of error disclosure is a desire that someone take responsibility for the error and for preventing recurrences. Many surgeons struggled with these aspects of disclosure as well. Surgeons’ difficulty with these disclosure tasks may reflect the conflicting messages they receive from the patient safety (errors reflect system failure) and surgical cultures (surgeon as captain of the ship). For surgeons who conceive of errors as mostly personal failures, it may be difficult to envision strategies for preventing error recurrences beyond simply trying harder. It may be especially challenging for surgeons to know how to discuss error prevention with patients in the setting of system errors since many aspects of such systems may seem out of their direct control. The fact that surgeons’ scores for discussing error prevention were lowest in the retained sponge case, a classic system error, further supports the likely connection between surgeons’ attitudes about why errors happen and their difficulty in discussing error prevention with patients.

These surgeons also showed room for improvement in responding to the patients’ emotions. Empathetic communication is a core aspect of
doctor-patient communication and is especially important when discussing difficult issues with patients. Yet, certain dimensions of medical errors, such as surgeons’ embarrassment about an error or concerns about culpability, may make it especially difficult for them to disclose errors empathetically. Validating patients’ upset feelings about the error may also conflict with surgeons’ desire to persuade the patient that the error was not as serious as it appears or to project an appearance of being calm and in control. However, failing to communicate empathetically with patients about errors inadvertently may give patients the impression that the surgeon does not care about what happened.

The significant variation in surgeons’ approach to disclosure suggests a lack of professional consensus regarding basic guidelines for the content of error disclosure. Professional societies, specialty boards, risk managers, and patient advocates should collaborate on the development and dissemination of evidence-based disclosure guidelines, an important first step in creating effective education programs on disclosure. In addition, while some errors may be obvious to patients, other errors, such as our hyperkalemia case, may not be readily apparent to patients. When responding to the hyperkalemia scenario, surgeons often disclosed the error only after the standardized patient asked probing questions. Yet, many patients may feel uncomfortable being assertive with their doctor in this way. Such disclosure guidelines would help surgeons understand what information they should disclose to patients regardless of whether the patient asks specifically for that information.

Our study also highlights a novel approach to educating surgeons in error disclosure. Ninety percent of the surgeons in our study had not received any previous education or training in disclosing errors. As with many communication skills, the ability to disclose errors effectively requires both background knowledge of basic skills, and the ability to practice and receive feedback on these skills. These surgeons found the experience of discussing errors with a standardized patient by videoconference to be realistic and educational. As technologies to deliver educational material over the Internet continue to improve, one could envision error disclosure education that combined Web-based didactic material and disclosure practice with SPs by videoconference. However, while most surgeons have had experience disclosing errors to patients, such conversations are a relatively infrequent event for any one surgeon. Therefore, to be most effective, such disclosure training should combine both baseline training with just-in-time reinforcement of core skills immediately before a disclosure conversation.

Our study has a number of limitations. The surgeons were a convenience sample from 2 academic institutions; therefore, the potential for self-selection bias existed. Surgeons who were more comfortable or more experienced in error disclosure might have been more likely to participate. However, given the considerable variation in quality of disclosure that we observed, we think an opportunity clearly exists to improve communication even in a volunteer sample. Not every surgeon saw every SP patient case. However, the surgeons’ performance was relatively consistent across all 3 cases, suggesting the results would be similar had each surgeon seen all 3 cases. The use of SPs also may not fully represent surgeons’ behavior in a real disclosure situation, but it is comparable to other studies of communication.

Our study adds to the growing body of evidence that physicians and surgeons may not be meeting patients’ preferences for information and support after harmful medical errors. Understanding the specific error disclosure skills that surgeons find most challenging is an important first step in developing and disseminating effective disclosure training programs.

REFERENCES