

A Conceptual Model for Disclosure of Medical Errors

Stephanie Fein, Lee Hilborne, Margie Kagawa-Singer, Eugene Spiritus, Craig Keenan, Gregory Seymann, Kaveh Sojanian, Neil Wenger

Abstract

Objective: Patient safety is fundamental to high-quality patient care. Critical steps toward improving the safety of the health care system include ensuring that the system is aware of its errors so that effective remedies can be applied, and enhancing the trustworthiness of the health care system for patients by disclosing errors that are meaningful to them. This study aimed to construct a conceptual model of the factors that facilitate or hinder disclosure of medical errors.

Methods: We conducted 25 separate focus groups with attending physicians, nurses, residents, patients, and hospital administrators at 5 academic medical centers in a university health care system. The protocol probed the ethical perceptions of participants and the details of disclosure expectations. Audiotapes of the focus groups were transcribed and analyzed using Atlas.ti software. Codes were assigned to the text in an iterative fashion. Themes were identified and assembled into a model of disclosure. **Results:** All groups believed that errors should be disclosed. Important influences on whether disclosure would occur fell into four categories: provider factors, patient factors, error factors, and institutional culture. Provider issues included perceived professional responsibility, fears, and training. Patient factors included their desire for information, level of health care sophistication, and rapport with their provider. Error factors included level of harm and whether patients and others were aware of the error and the harm. Perceived tolerance for error and a supportive infrastructure were institutional factors that influenced disclosure. **Conclusion:** This grounded model of error disclosure delineates areas for interventions to increase disclosure as a step toward improving patient safety.

Introduction

Patient safety in American hospitals must be improved.¹ The Institute of Medicine report, *To Err Is Human: Building a Safer Health System*, released in 2000, brought the issue of medical mistakes to the attention of the American public and Government in a dramatic way.² The report focused attention on the large number of potentially preventable deaths in U.S. hospitals. Deaths due to medical errors in the United States were estimated to exceed the annual number of deaths due to breast cancer, motor vehicle accidents, or AIDS. Medical errors are estimated to cost the Nation \$17 billion in direct health care, disability, and lost income.³ Patient safety is fundamental to high-quality patient care. A critical step toward improving the safety of the health care system would be to ensure that the

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE 2005		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE A Conceptual Model for Disclosure of Medical Errors				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Agency for Healthcare Research and Quality 540 Gaither Road, Suite 2000 Rockville, MD 20850				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES Published in Advances in Patient Safety: From Research to Implementation. Volumes 1-4, AHRQ Publication Nos. 050021 (1-4). February 2005. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/qual/advances/					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 12	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

system is aware of its errors. Nondisclosure of medical mistakes obstructs quality assurance interventions integral to systematic improvement in health care.

A critical mechanism to enhance safety in other highly technical industries involves the identification and scrutiny of error with implementation of a corrective feedback loop.⁴ The aviation industry, with its successful confidential reporting system, serves as one example. Theoretically, disclosure of medical mistakes would be facilitated if those involved in health care viewed disclosure of errors and near misses as the aviation industry does, namely, as vital to the overall improvement of the system. Disclosure in such an environment would be viewed as serving the higher purpose of improving patient safety, rather than merely exposing individual clinicians to blame and litigation.

In addition to the theoretical benefits, studies find that both patients and physicians believe that medical errors should be disclosed.^{5,6} Yet, it appears this practice is uncommon in health care.⁷⁻⁹ Thus, instead of a self-correcting system that improves from each mistake, health care limps toward improvement, acting only on errors identified by either grave harm or rare voluntary disclosure. Disclosure in health care is hampered by many factors, including financial and legal barriers,¹⁰ an expectation of perfection promulgated by medicine,¹¹ interactions within the provider-patient relationship,¹² and a culture that focuses on individual responsibility rather than system improvement.¹³ This contrasts with the physicians' professional responsibility to provide the highest quality of medical care and to act in the patient's best interest. Understanding the expectations of patients and providers concerning disclosure and the factors that impede disclosure can elucidate the contrasts between expressed values and observed behaviors.

Several studies of patients reveal that they desire full disclosure of a medical error.^{5,6,14-17} A study of 149 internal medicine patients from an academic outpatient clinic in California showed that 98 percent of respondents would want a mistake to be acknowledged in some way, regardless of whether the harm was minor, moderate, or severe.⁶ Similarly, 91 percent of patients surveyed in a New England-based managed care plan reported they wanted to be told of errors even if they did not result in harm.¹⁴

Studies indicate that physicians also believe that errors causing harm should be revealed.^{5,15,17} Yet, in studies surveying both physicians and patients about errors, variation in views begins to emerge. A British study of ophthalmologists and their patients found that 92 percent of patients and 60 percent of ophthalmologists thought the patient should have been told of a cataract surgery complication that altered the surgery but did not result in harm to the patient.⁵ Prior research also demonstrates a difference between perceptions of what should happen and actual behavior. In a vignette-based study, 95 percent of physicians indicated that they would disclose an error to a patient, however they acknowledged that there is a difference between reality and hypothetical cases, and that in a real life situation their actions may be quite different.¹⁷ This idea is supported by findings in the open-ended questionnaire study of Wu et al., which showed that only 24 percent of internal medicine residents who reported making

mistakes described discussing the error with the affected patient, and only 54 percent discussed it with their attending physician.⁷ More recently, a qualitative study with patients and physicians showed that patients wanted more information about medical errors than physicians were apt to provide.¹⁵

One way to understand the discrepancy in patient expectations and provider behavior would be to understand the factors that influence the decision to disclose error. Fear of litigation,^{18, 19} fear of harming one's reputation,²⁰ and emotional distress^{8, 20} have been suggested as factors inhibiting a physician's decision to disclose. Furthermore, there are others involved in the care of patients who stand to be affected by the disclosure of a mistake; yet the influence of coworkers, administrators, and others has been inadequately explored.^{9, 21–23}

Disclosure rates presented in the medical literature range from 24 percent to 98 percent. Differences relate to method of data collection, study design, and definition of disclosure. Studies using closed-ended, self-administered questionnaires consistently report higher disclosure rates, while investigations using open-ended questionnaires reveal much lower rates. The methodological approach employed is key to developing a full model of disclosure and its influences. A grounded approach that includes the views of the variety of stakeholders may best portray a comprehensive understanding of the factors that influence the decision to disclose. Our study explored the expectations and actions of health care stakeholders—including nurses, residents, attending physicians, administrators, and patients—in order to describe the factors influential in the decision whether or not to disclose a medical error.

Methods

We employed a qualitative approach to identify disclosure views of clinicians, patients, and administrators by conducting focus groups at five academic medical centers in one university system. Five separate focus groups of residents, attending physicians, nurses, patients, and hospital administrators were conducted at each site. The protocol probed the ethical perceptions of participants and the details of disclosure expectations. Audiotapes of the 25 focus groups were transcribed and analyzed. Codes were assigned to the text in an iterative fashion, and we identified themes that emerged from the data.

Qualitative studies are often designed to answer questions of process: How or why does something happen? In order to attempt to answer the question, “What affects the decision to disclose a medical error?” we used a grounded qualitative technique. Qualitative studies rely on inductive methods of inquiry and seek to produce a description of reality.²⁴ The inductive approach has the capacity to probe for deep, rich information. The goal is to arrive at a full “understanding that is directed toward reconstructions of previously held constructions.”²⁵ This method is an important way to get data that would be difficult to obtain in any other way, such as from marginalized or remote populations or concerning sensitive topics.²⁶

Since empirical evidence suggests that the behavior of interest—disclosure of a medical error—occurs infrequently and a major focus of this project is the error that is not disclosed, an “in vivo” study is infeasible. Qualitative research techniques have been especially useful for exploring sensitive topics such as ethical dilemmas or unethical behaviors. Many believe that focus groups, in particular, are the best way to get people to talk openly about potentially vulnerable topics.²⁷ Focus groups are good at uncovering the attitudes and beliefs that dictate behavior because the interactions and shared experiences of the homogeneous group members provide a rich source of otherwise unobtainable information. Homogeneity is an important aspect of the success of a focus group. For this reason we convened separate groups of stakeholders assembled to discuss the topic of error disclosure. We aimed to create an atmosphere where all would feel at ease, thus enhancing the probability of a candid discussion of this sensitive subject and decreasing the chance of subordinate positioning and posturing that would interfere with open dialogue.

Focus groups

Separate focus groups of attending physicians, residents, nurses, administrators, and previously hospitalized patients were conducted at each of five academic medical centers between April and September 2003—a total of 25 focus groups. The focus groups had a mean of 10 participants (range of 4–14). Each participant provided informed consent for their involvement in the discussion and gave permission to be audiotaped. Groups convened for 60 to 90 minutes and refreshments were served. Two of the authors moderated all of the groups. Each of the five academic centers’ institutional review boards approved the study protocol.

Using e-mails and general announcements, an effort was made to recruit provider participants (nurses, attending physicians, and residents) from different specialties, including internal medicine and its subspecialties, surgery and its subspecialties, anesthesia, family medicine, obstetrics, gynecology, pediatrics, and pathology.

Patient participants were recruited through their physicians. Patient participants had received medical care at the medical center during the past 2 years, were at least 18 years old (with the exception of sick children who were represented by their parents), and spoke English. They had a variety of illnesses, ranging from heart transplant to femur fracture. Many had chronic illnesses.

We scheduled the administrator focus group during one of their regular meetings to facilitate attendance. Medical directors were excluded because they participated in the team that designed the project. Administrator participants comprised the senior staff for each medical center and usually included risk management and quality improvement personnel.

The discussion followed a predetermined format based on a protocol developed through literature review and pilot testing. Our guide included open-ended questions designed to establish beliefs, behaviors, and perceived barriers

and facilitators to disclosure. The same protocol was used at each of the sessions, and it began with the following fictional scenario of an error:

A 62-year-old diabetic patient with chronic renal insufficiency is admitted to the hospital with a new onset gastrointestinal (GI) bleed. He is made “nothing by mouth” (nil per os, NPO) for endoscopy, but his medications were not held. Due to severe hypoglycemia, the patient had a seizure, fell off his bed, and fractured his hip.

Participants were asked if there should be disclosure of the error of not holding the medication. After discussion, with probes used as needed by the moderator, the question was asked for the same scenario, “Would the provider disclose the error?” The discussion then broadly explored factors associated with whether disclosure would occur. Probes inquired about types of errors, the importance of error outcomes, and factors in the physician-patient relationship. Financial and legal aspects of error disclosure surfaced in the discussion. Participants often presented their actual behaviors and experiences to serve as examples and to question one another.

We audiotaped each session. An observer documented the session by hand, noting relevant group dynamics. Each session’s tape was transcribed verbatim. Each transcript was then reviewed with the audiotape to fill in any missing sections and to correct medical terms. All references to names, places, or other unique identifiers were removed from the final version. Notes from the sessions were incorporated into the analysis both as a check and to fill in information.

The software program Atlas.ti Version 4.2 (Scientific Software Development, Berlin) was used to organize and analyze the data. Analysis consisted of reviewing the transcripts and coding quotations with appropriate identifying labels. This led to theme building through an iterative process that discerned recurring patterns until saturation of ideas was achieved. Based on the generated codes and themes, the views of patients, physicians, nurses, and administrators could be described. A preliminary model of disclosure was then constructed.

Results

A total of 55 attending physicians, 50 residents, 45 nurses, 36 patients, and 54 administrators participated in the focus groups. The mean duration of experience at their medical center for all groups—including the patients—was quite long, except for residents (Table 1). The majority of respondents were white. Most attending physicians and administrators were male, while more nurses, residents, and patients were female.

The five sites were similar in number of participants, age, gender, ethnicity, and duration of experience at the medical center (Table 2).

Table 1. Characteristics of participants in focus groups, by type of group

Focus group	N	Mean age	% Male	% White	Mean number of years at medical center
Attending physicians	55	47	75	77	12.5
Residents	50	29	42	62	2.8
Nurses	45	41	5	60	10.0
Patients	36	56	33	69	7.2
Administrators	54	53	57	94	12.2

N = number of participants

Table 2. Characteristics of participants in focus groups, by site

Site	N	Mean age	% Male	% White	Mean number of years at medical center
1	42	46	50	74	10.6
2	54	44	35	72	8.7
3	50	46	44	70	9.2
4	50	42	45	59	7.3
5	44	48	51	81	9.3

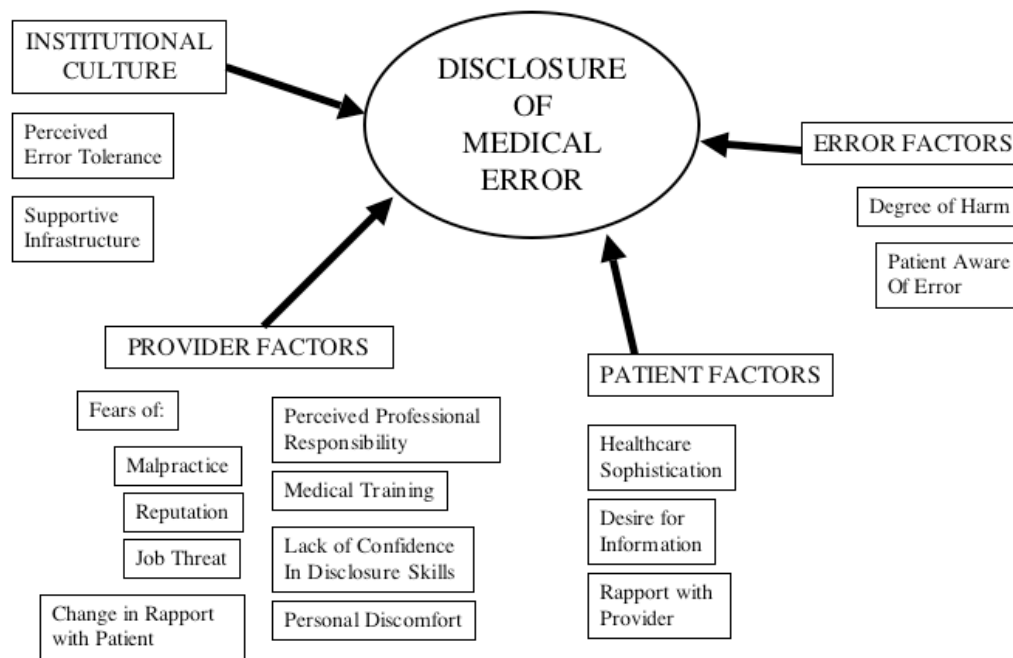
N = number of participants

In general, all groups endorsed the disclosure of error to patients where there was harm. Differences between and within groups emerged concerning the need to disclose and the likelihood of disclosure of medical errors that did not result in substantial harm. Focusing specifically on the provider’s decision “to tell or not to tell,” important influences grouped into four general categories: provider factors, patient factors, error factors, and institutional culture. Influential provider issues included perceived professional responsibility, fears, and training. Patient factors included their desire for information, level of health care sophistication, and rapport with their provider. The level of harm caused by the error and whether patients and others were aware of the error and any harm were principal error characteristics related to disclosure. Institutional culture, including perceived tolerance for error and supportive infrastructure, was identified as integral to the disclosure decision (Figure 1).

Provider factors

The personal characteristics and attitudes of the provider figured most prominently in the decision to disclose a medical error. Consistent with professional codes, providers described a strong sense of duty and responsibility

Figure 1. Influences on the decision to disclose a medical error



for their patient’s welfare. One provider stated, “No matter what happens in the care of the patient,... I am the one who is responsible for that patient.” Phrases such as, “The patient has the right to know” and “It’s your obligation to do so” were common and reflected an ideology that the provider has an ethical duty to discuss error with his/her patients.

The providers’ articulated responsibility for the welfare of the patient stood in stark contrast with the profound fears acknowledged by the provider groups. One nurse explained, “I think fear kind of captures a lot of different emotions that would prevent somebody [from disclosing]...fear of being mistrusted or fear of retribution, fear of damaging career opportunities.” Potential threat to job status played a role in deciding whether to disclose. But there were many other sources of fear, as described by one resident: “I think there are a few kinds of fear. One is fear of what your colleagues are going to think. Two is fear of being sued and what is that going to do to your future, and three is your own internal fear of admitting to yourself that you made a mistake.” While many attending physicians and residents related that a major fear contributing to their reluctance to disclose an error was “overwhelmingly, malpractice liability,” others recognized that the greater deterrent was the direct negative impact of breaking the bad news for which the medical team was at least in part responsible: “When you go out to talk to the family, [it is] the displeasure they are going to have with you [that matters]. You are going to feel like you are just a bad guy.” A sense of shame not only served as a direct deterrent, but providers saw the disclosure of less-than-perfect medical care as creating a “loss of rapport with the patient,” a potential to

“undermine your relationship with the patient,” and leading to “trust get[ting] eroded.”

Many providers were concerned with their lack of familiarity with how best to handle a situation that involved a medical error. Clinicians cited several factors hindering disclosure: “...the emphasis, at least in my training, has been – don’t talk about anything, keep quiet.” Some felt a lack of skills to handle communicating certain aspects of the error. One physician flatly stated, “My God, this is really uncomfortable and I don’t have confidence about how to do it.” A nurse felt similarly and relayed, “I learned how to discuss grief and loss... But error? No... it’s all on-the-job.” Others had doubts concerning the correct actions from an organizational or legal perspective: “As soon as it gets into the legal realm, suddenly as an attending physician, I feel like I need to be coached as to what can be said and how it can be said and so forth.” Administrators admitted that “we might not train our physicians enough about how to go about [disclosing error].”

Overall, providers perceived a variety of obstacles to revealing mistakes. Fears ranged from legal and economic repercussions of an error to potentially tarnished reputations to the proximate discomfort of the interaction with patient and family. Lack of experience, perceived lack of standards taught in training, and poorly developed skills to communicate mistakes made the activation energy required to promote disclosure seem overwhelming, despite the highly valued professional responsibility to act in the best interest of the patient.

Patient factors

Patients’ views, capabilities, and attitudes influence a provider’s decision concerning disclosure of error. Providers describe consideration of a patient’s wishes, knowledge, and the strength of the physician-patient relationship. One physician summarized it this way: “I almost think it needs to be on a patient-by-patient basis. The same case could happen to two different patients. And it may be appropriate to report one, whereas it may not be so appropriate to report the other, depending upon the patient’s overall psyche.” Clinicians specified established rapport between patient and provider as one of the most influential factors in the decision to disclose: “If doctors have a good relationship with their patients... patients really would relate well with their doctors. And medical errors, we could dialogue with in a pretty decent way.” One physician elaborated on this common understanding:

If you develop a good relationship over time with the patient and his family, if you are sincere and honest about it from the start, if you appear to be a caring human being, they will excuse almost anything. If you are abrupt and short and you are dishonest, if you try to hide or you seem duplicitous and you seem uncaring and detached, then you are going to be in real trouble.

Patient responses confirmed provider views that patients value their relationship with their provider and take it into consideration when an error has occurred. One patient explained,

I've had one doctor for 23 years and I have a great rapport with him and he could pretty much tell me anything and I would...feel a lot better about it because we've gone through so much together. And, as opposed to another doctor, who I've had for just a couple of years—since I had my heart attack—who is a classic “I've-got-exactly-7-minutes-because-I'm-such-a-specialist” and he's 2 hours late to the appointment, to boot. If he told me something like that, I would be absolutely livid and it would be totally different.

While nearly all patients wanted to hear about errors that caused substantial harm, some patients would not want to be informed of every error. Patients expressed feeling overwhelmed by that type of disclosure: “There's so much that goes on, I can't imagine having to fill you in on every single detail...” One patient favoring universal disclosure stated, “If it was me, and I'm the only one I can speak for, I would want to know because I would want the benefit of deciding for myself how serious was this.” Another patient stated that “lack of patient knowledge is really detrimental” to a patient's care, and that if a patient was not well informed about their health, then they might not want to know about errors. Some patients justified selective nondisclosure, speculating that “technical words might put fear into the treatment, and, therefore, they don't cooperate.” Some patients also saw disclosure as potentially harmful to established rapport. To illustrate this, one patient invoked the issue of trust in the patient-provider relationship: “Every time you step in an elevator, do you wonder whether the engineer made a mistake or not? You put yourself in the hands of your professional...”

Error factors

The outcome of the error—who is aware of it and the likelihood that it will become known—strongly influences provider decisions concerning disclosure. One physician's statement reflects what many expressed: “I don't know that we disclose all errors. We tend to focus on the ones that have an impact on their care.” Many providers indicated that “errors that are either evident to a patient or have immediate consequences or significant consequences to the patient” are most likely to be discussed with patients. Justifications for not disclosing an error that did not result in permanent harm included statements like “nothing happened, so there's no reason to bring up an issue that hasn't been brought up and the patient won't bring up” and “for something that didn't cause harm, no need for [the patient] to worry about it.”

Providers uniformly indicated that patient awareness of an error increased the chance of disclosure. One physician explained it this way: “I think that recognition on the part of the patient that something may have been wrong is an adverse event.” This physician illustrated his point by comparing disclosure of medical mistakes to aviation errors, stating, “There are near misses in the skies all

the time. They do not get on the intercom and say, ‘You know what? We just came within 200 feet [of another plane].’ But if a lot of people in the airplane see it, then they do come on and they explain it.” Error outcome and patient awareness of the error outweighed any other determinants for disclosure related to the error itself.

Institutional culture

The institutional culture in which clinicians function has a major impact on their willingness to admit errors. Providers attributed many of their perceptions and actions to the institutional culture in which they were immersed: “There obviously is a physician culture and nursing culture and a management culture...the culture is important.” One provider described an atmosphere that was intolerant of error: “The remark – Goddamn, what were you thinking? – comes out pretty often. When you get that kind of response when you admit your error, you are very unlikely to continue admitting your errors.” Institutional infrastructure can similarly contribute to the likelihood of disclosure. Though some hospitals had specific policies prescribing disclosure of errors, few providers were aware of the official policy, stating, “I can say right now that I do not know what the policy is.” Another aspect of the hospital culture that affects disclosure includes workload and scheduling, as expressed by this resident: “If you don’t have a lot of time on your hands or if you’re really overwhelmed with work, I think your threshold goes up as to what kinds of errors need to be reported.”

Providers suggested changes in institutional culture: “There needs to be a culture where individuals do not feel penalized for reporting errors. You should feel comfortable reporting to the chief of service or the head of nursing.” Many acknowledged that there are few good ways to change culture. Modeling was recommended by many as an answer: “...[S]how people, ‘This is how [to be] a good physician,’ by attendings who acknowledge those kinds of things and discuss them ...” Changing resident work hours and better defining errors that require disclosure were seen as improvements to institutional infrastructure that would support disclosure behaviors.

Conclusion

The influences on error disclosure to patients demonstrate that in general, the values of patients, providers, and institutions align concerning errors of consequence to patients. Yet, even for the harm-producing errors, significant barriers at the level of the provider and institutional culture hinder disclosure. Many of these, such as provider unfamiliarity with disclosure techniques and procedures, an institutional culture of blame, and lack of role modeling, can be amenable to intervention.

Disclosure of errors that have not caused significant harm or about which patients are unaware pose even more complex targets for intervention. These are the errors likely to inform quality-improvement interventions because they are

more common and less frequently revealed. Disclosure of such errors requires provider knowledge of the patient's desire for information and may require disclosure of information to the institution that is not revealed to the patient. Such models are more intricate, but are still buffeted by the same strong forces of provider fears and institutional culture and require careful consideration of the physician-patient relationship.

Acknowledgments

This project was supported by a grant from the Agency for Healthcare Research and Quality (AHRQ HS11512-02, Lee Hilborne, principal investigator). The authors recognize the technical assistance of Tuyen Nguyen.

Author affiliations

Division of General Internal Medicine and Health Services Research (SF, NW) and the Department of Pathology (LH), David Geffen School of Medicine at the University of California at Los Angeles. UCLA Healthcare Center for Patient Safety (LH) and Ethics Center (NW). Department of Community Health Sciences, UCLA School of Public Health (MKS). Department of Medicine, University of California at Irvine (ES). Department of Medicine, University of California at Davis (CK). Department of Medicine, University of California at San Diego (GS). Ottawa Health Research Institute, University of Ottawa (KS).

Address correspondence to: Stephanie Fein, MD; Division of General Internal Medicine and Health Services Research, David Geffen School of Medicine at UCLA, 911 Broxton Plaza, Los Angeles, CA 90095-1736. Phone: 310-794-2278; fax: 310-794-0766; e-mail: sfein@mednet.ucla.edu.

References

1. Institute of Medicine, Committee on Health Care in America. Crossing the quality chasm: a new health system for the 21st century. Washington, DC: National Academy Press; 2001.
2. Kohn LT, Corrigan JM, Donaldson MS, editors. To err is human: building a safer health system. A report of the Committee on Health Care in America, Institute of Medicine. Washington, DC: National Academy Press; 2000.
3. Thomas EJ, Studdert DM, Newhouse JP, et al. Costs of medical injuries in Utah and Colorado. *Inquiry* 1999;36:255–64.
4. Barach P, Small SD. Reporting and preventing medical mishaps: lessons from nonmedical near miss reporting systems. *Br Med J* 2000;320:759–63.
5. Hingorami M, Wong T, Vafidis G. Patients' and doctors' attitudes to amount of information given after unintended injury during treatment. *Br Med J* 1999;318:640–1.
6. Witman AB, Park DM, Hardin SB. How do patients want physicians to handle mistakes? *Arch Intern Med* 1996;156:2565–9.
7. Wu AW, Folkman S, McPhee SJ, et al. Do house officers learn from their mistakes? *JAMA* 1991;265:2089–94.
8. Christensen JF, Levinson W, Dunn PM. The heart of darkness: the impact of perceived mistakes on physicians. *J Gen Intern Med* 1992;7:424–31.
9. Lamb RM, Studdert DM, Bohmer RMJ, et al. Hospital disclosure practices: results of a national survey. *Health Aff* 2003;22(2):73–83.
10. Kapp MB. Legal anxieties and medical mistakes: barriers and pretexts. *J Gen Intern Med* 1997;12:787–8.
11. Bosk CL. *Forgive and remember: managing medical failure*. Chicago: University of Chicago Press; 1979.
12. Wu AW, Cavanaugh TA, McPhee SJ, et al. To tell the truth: ethical and practical issues in disclosing medical mistakes to patients. *J Gen Intern Med* 1997;12:770–5.
13. Leape LL. Error in medicine. *JAMA* 1994;272:1851–7.
14. Mazor KM, Simon SR, Yood RA, et al. Health plan members' views about disclosure of errors. *Ann Intern Med* 2004;140:409–18.

15. Gallagher, TH, Waterman AD, Ebers AG, et al. Patients' and physicians' attitudes regarding the disclosure of medical errors. *JAMA* 2003;289(8):1001–7.
16. Hobgood C, Peck CR, Gilbert B, et al. Medical errors—what and when: what do patients want to know? *Acad Emerg Med* 2002;9:1156–61.
17. Sweet MP, Bernat JL. A study of the ethical duty of physicians to disclose errors. *J Clin Ethics* 1997;8(4):341–8.
18. Charles SC, Pyskota CE, Nelson A. Physicians on trial: self-reported reactions to malpractice litigation. *West J Med* 1988;148:358–60.
19. Gostin L. A public health approach to reducing error: medical malpractice as a barrier. *JAMA* 2000;283:1742–3.
20. Wu AW. Medical error: the second victim: the doctor who makes the mistake needs help too. *Br Med J* 2000;320:726–7.
21. Hevia A, Hobgood C. Medical error during residency: to tell or not to tell. *Ann Emerg Med* 2003;42:565–70.
22. Lawton R, Parker D. Barriers to incident reporting in a health care system. *Qual Saf Health Care* 2002;11:15–8.
23. Nowicki M, Chaku M. Do health care managers have an ethical duty to admit mistakes? *Health Care Financial Mgmt* 1998;52(10):62–4.
24. Bernard RH. *Research methods in anthropology*. 2nd ed. Thousand Oaks, CA: Sage Publications; 1994.
25. Lincoln, YS. Sympathetic connections between qualitative methods and health research. *Qual Health Res* 1992;2(4):375–91.
26. Kagawa-Singer M. Improving the validity and generalizability of studies with underserved U.S. populations: expanding the research paradigm. *Ann Epidemiol* 2000;10(8S): S92–103.
27. Carey MA. The group effect in focus groups: planning, implementing and interpreting focus group research. In: Morse JM, editor. *Critical issues in qualitative research methodology*. Thousand Oaks, CA: Sage Publications; 1994.