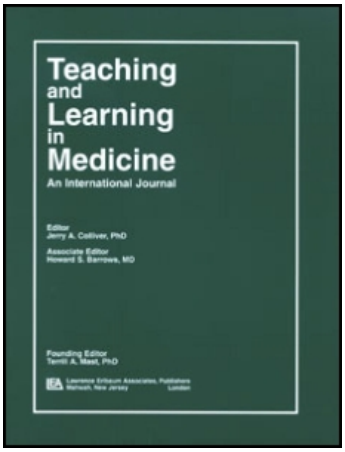

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Teaching Medical Students the Art of Medical Error Full Disclosure: Evaluation of a New Curriculum

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DEVELOPMENTS

Teaching Medical Students the Art of Medical Error Full Disclosure: Evaluation of a New Curriculum

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***Background*: Despite the acknowledgment that error disclosure is essential to patient safety and the patient–provider relationship, there is little undergraduate training related to error disclosure. *Description*: Pilot test and evaluate an educational module designed to improve student confidence in understanding and performing medical error disclosure. The training was designed to establish competency in the four Rs of apology—recognition, responsibility, regret, and remedy—and included a 3-hr interactive discussion, training DVDs, practice of full disclosure using standardized patients, and facilitated reflection. Students were assessed pre and post using a self-administered confidence survey. *Evaluations*: Confidence among students improved significantly from 11.5 ± 2.9 before to 15.3 ± 1.3 after the module ($p < .0001$). *Conclusions*: The full disclosure educational module significantly improved students' perceived confidence in admitting medical errors and their confidence in understanding and performing the full disclosure of a medical error.**

BACKGROUND

In a landmark report, *To Err is Human: Building a Safer Health System*, the Institute of Medicine[1,2] estimated that as many as 98,000 patients die each year from preventable medical errors. The Institute of Medicine made a strong call for change in the education and training of physicians in order to address the problems associated with quality, access, and outcomes in the present health care system. Reforming medical education to address the current safety and quality issues, however, presents a major challenge to educators since the shortcomings that must be addressed are deeply entrenched in the tradition and culture of the institutions and organizations that compose the medical education system.[3]

To ensure patient safety, the next generation of physicians must be prepared to recognize potential sources of error in medical practice, to acknowledge their own vulnerability to error, and to engage fully in the process of continuous quality improvement.[4] Most physicians agree that medical errors should be disclosed to patients; however, research demonstrates that disclosure of errors is uncommon, with roughly only one in four errors being disclosed.[5] Many physicians, however, continue to remain silent secondary to the fear of litigation, fear of stating explicitly to a patient that an error occurred, and the desire to put a positive spin on a situation.[6]

Full disclosure can be described as "communication between a health care provider and a patient, family members, or the patient's proxy that acknowledges the occurrence of an error, discusses what happened, and describes the link between the error and outcomes in a manner that is meaningful to the patient" (p. 2).[6] Open disclosure is part of an ongoing patient-centered

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informed consent process and assists health care providers to address problems associated with the care delivery system. This can then prompt improvement in those practices to reduce the potential for harm to subsequent patients.

The first step in a culture of error disclosure is to educate physicians and other providers.[7] It is difficult to create appropriate undergraduate learning opportunities when attending physicians, who serve as preceptors, have little or no experience with the disclosure of medical error, believe they provide optimal quality patient care, and are of the belief that they do not make mistakes.[8] The purpose of the present study was to pilot an educational module that focuses on the disclosure of medical error.

DESCRIPTION

We developed and piloted an educational module on full disclosure offered to students from the six health sciences colleges (medicine, nursing, pharmacy, applied health, public health, and dentistry) at the University of Illinois at Chicago. This module was conducted as part of a 30-hr 2-week patient safety elective offered to senior level and graduate students in the health sciences in the spring of 2006. The present study represents pilot data on the effect of the full disclosure educational module on student's self-efficacy or confidence in the domain of full disclosure. We sought and were exempt from the University of Illinois at Chicago Institutional Review Board approval.

Learning Objectives

By the conclusion of the educational intervention, participants were expected to have learned the elements of full disclosure; gained an appreciation for what patients and families expect from health care providers when medical errors occur; and be able to understand, describe, and apply effective communication techniques utilized in full disclosure and apology with patients and their families.

Module

In preparation for the medical error training session, students were asked to read *Wall of Silence*[9] and a short journal article on medical error full disclosure and transparency.[10] The full disclosure module focused on establishing competencies in the four Rs of apology: recognition, responsibility, regret, and remedy.[11] The first half of the session was conducted as a large-group interactive lecture with facilitated discussion. The lecture materials were developed and structured so that the students learned about (a) the concept of full disclosure and its role in patient safety in the clinical environment and (b) the key components required for full disclosure. Students also viewed *Disclosure of Medical Errors to Patients*, a training DVD.[12]

During the second half of the educational module, students were broken up into small groups, each facilitated by a course director, for deliberate practice of the components of full disclosure and root-cause analysis. The goal for the second half of module included (a) learning about and participating in the process of root cause analysis of a medical error after it has occurred and (b) learning about and practicing communication hierarchy and medical crisis resource management skills. The scenarios developed for the purposes of the full disclosure educational session were obtained from real patient cases at the University of Illinois Medical Center at Chicago. The following key elements of the full disclosure process were stressed during the case scenarios and practiced by the students: (a) the importance of a timely expression of regret that is a caring, honest, personal, and empathetic; (b) recognition of responsibility for the error and its harmful effects; (c) the importance of benevolent gestures or remedies for medical errors; (d) patient and/or family expectations including the fear of abandonment; and (e) anticipation of potentially difficult to answer questions. Students were also provided with examples of appropriate expressions of regret including advice on body language, choice of terminology, eye contact, and the site for discussion by risk managers trained in the process. Students had several opportunities to both perform and watch a full disclosure allowing for both hands-on and reflective practice by viewing and discussing the actions of their peers.

At the end of the educational session, the two small groups reconvened as a large group for discussion and debriefing. The learning acquired during this 3-hr session was reinforced throughout the remainder of the elective through participation in a plenary session facilitated by Rosemary Gibson regarding the role of full disclosure from the patient and family perception, interactive discussions with patient advocacy leaders, and ongoing application of communication techniques in various role-playing scenarios.

EVALUATION

Full Disclosure Perceived Self-Efficacy Scale

Domain-based assessments of perceived self-efficacy (confidence) are stronger predictors of performance than are global indices of perceived self-efficacy.[13] To our knowledge, no current tool evaluating student self-efficacy in domains related to patient safety exists; thus, we developed a 19-item instrument to assess perceived patient safety self-efficacy, 4 of which are specific to the domain of full disclosure. The items were designed to assess the students' self-efficacy (a) in the principles of full disclosure and transparency, (b) to disclose an error to a patient and/or their family, (c) to admit an error, and (d) to offer an apology for that error. In response to the question stem "How confident do you feel in your ability to," students were asked to respond to each item on a 4-point scale ranging from *not at all confident* to *very confident*. The confidence survey was administered prior to participation in the 2-week patient safety elective and again immediately after participation.

TABLE 1
Confidence survey summary results

	Confidence[a]			
	Pre	Post	Change[b]	*p* Change
Understand full disclosure	2.2 ± 0.8	3.8 ± 0.4	1.6 (1.3–1.9)	<.0001
Do a full disclosure	2.8 ± 0.8	3.8 ± 0.4	1.0 (0.7–1.3)	<.0001
Admit an error to a supervisor	3.3 ± 0.7	3.9 ± 0.4	0.57 (0.3–0.9)	.001
Admit an error to a patient	3.2 ± 0.8	3.9 ± 0.3	0.71 (0.4–1.1)	.001
Total summary score	11.5 ± 2.9	15.4 ± 1.3	3.9 (2.7–5.0)	<.0001

[a]Values reported are means (95% confidence intervals).

Standardized Patient With Feedback

Students also participated in a standardized patient (SP) case to assess their knowledge and skill related to the disclosure of a medical error and apology to a patient before and after the course. Student–SP encounters were observed and subjectively evaluated by the course directors for including components of full disclosure, including an apology. Each student was immediately given feedback on their performance by the observing faculty.

Analyses

Analyses were performed using SPSS version 11.2 for OSX (SPSS, Inc., Chicago, Illinois). Categorical variables were compared using Fisher's Exact Test and continuous variables were analyzed using a paired *t* test. The SP cases were used as learning tools and evaluated on a qualitative basis by the course director. These results are summarized by statements and common themes. A two-sided p value $\leq .05$ was considered statistically significant.

Participants

Eighteen (9 male, 9 female) students enrolled and participated in the patient safety elective. The participants were from medicine ($n = 10$; 55.6%), advanced practice nursing ($n = 3$; 16.7%), applied health science ($n = 3$; 16.7%), public health ($n = 1$; 5.6%), and pharmacy ($n = 1$; 5.6%). Complete pre- and postcourse data were available on 14 (77.8%) participants; the results here reflect information only on these individuals.

Full Disclosure Confidence

The results of the full disclosure confidence survey are summarized in Table 1. Significant improvements were observed in each of the four domains of full disclosure confidence and the summary score. The greatest improvements in confidence were observed in the knowledge and performance domains.

Standardized Patient Case

In the precourse patient case, all 14 students (100%) failed to include the four essential elements of full disclosure (recognition, responsibility, regret, and remedy) and 13 (93%) failed to deliver a personal apology for the error. In the postcourse patient case, these numbers dropped significantly, with only 2 (14.3%) students failing to include the essential elements of disclosure and only 1(7.1%) student failed to deliver a personal apology to the SP.

CONCLUSION

To our knowledge, this represents one of the first studies to effectively deliver medical error full disclosure education to health science students. The full disclosure educational module significantly improved participants' perceived confidence at understanding and performing full disclosure as well as confidence to admit a medical error to both a supervisor and a patient. This study lays the groundwork for more comprehensive evaluation and dissemination of this important curriculum in patient safety.

The positive impact of the curriculum was demonstrated in the students' pre- and postcourse survey responses, which showed significant increases in confidence related to the ability to understand and utilize the essential elements of medical error disclosure. The confidence level of the students also increased significantly in the ability to engage in a full disclosure discussion with the patient and family after participation in the course. These findings were closely related with the behavior of the students during both the pre- and postcourse SP interactions as observed by the course directors.

We noted a very interesting finding when the responses to the questionnaire items relating to admitting errors and apology on the precourse survey were correlated with the actual performance of the students during the first SP case. When students were asked to relate a medical error to the SP on the first day of class, only two students (14.3%) extended a personal apology for the error to the patient. Yet when asked on the precourse survey how confident they were in their ability to admit an error to a patient, 92.8% of the students responded that they were

"somewhat confident" or "very confident" in their ability. These data suggest that although the majority of students believed they were confident in their ability to admit an error to the patient, their behavior during the standardized patient interaction did not reflect this perceived confidence. These findings are not unique to the students participating in this course, in fact, Duclos et al.[14] found that patients associated with physicians covered by COPIC, a medical malpractice insurance company, viewed the overall process of full disclosure very favorably, yet viewed most physician skills as "not favorable." In contrast, the physicians in this same study perceived their communication skills to be favorable. In the students' postcourse SP interaction, the behavior of the students correlated very closely with the postcourse survey responses, seeming to suggest that after participation in the course the students were able to match their behavior to their perceived confidence.

There are several limitations to the current study that must be acknowledged. First, this was a pilot study conducted at a single university. Participants for the study were self-selected, and thus it is unknown whether the students who participated were systematically different to their peers, which limits the generalizabilty of the results. Second, as it was a pilot study, the sample size is somewhat limited. Despite the small number of active participants, the statistical power for the changes in confidence for full disclosure was high. Third, we were unable to locate a validated tool to assess confidence in patient safety, and thus we developed a tool for the purposes of the patient safety course. Fourth, the study was also limited by the lack of a standardized method to score the standardized patient encounters. Despite these limitations, however, this study represents the first in the literature to deliver comprehensive education of medical error full disclosure to health professional students.

This pilot study provides evidence that health science students who have participated in a medical error full disclosure educational module during a 2-week patient safety elective at the University of Illinois at Chicago significantly increased confidence in the key elements of medical error disclosure and apology, and students were able to demonstrate proficiency in the communication of errors with apology to patients. Given the critical need for physicians and other health care providers to move forward with honest and forthright patient communication, educators must continue to focus on methods that optimize the training of students in the processes of effective medical error full disclosure.

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