Negotiating Medical Virtues: Toward the Development of a Physician Mistake Disclosure Model

Annegret F. Hannawa
Communication Department
Wake Forest University

Statistics show that nearly 98,000 patients die each year because of preventable medical mistakes. Despite legal obligations, a majority of physicians either fail to disclose a mistake or disclose it in an incompetent manner, causing detrimental outcomes. This article is the first to synthesize existing research on medical mistakes into an integrative physician mistake disclosure model. The proposed model theorizes that physicians conduct a cost–benefit analysis prior to deciding whether or not to disclose a medical mistake. In the event of disclosure, informational and relational disclosure competence is hypothesized to mediate the inherent detrimental effects of physician defensiveness on immediate and long-term outcomes. The article provides detailed directions for future research and discusses practical implications of the physician mistake disclosure model for physicians and health-care institutions. Most important, the model implies that a supportive organizational climate is needed to curb destructive physician defensiveness, optimize disclosure competence, and minimize detrimental outcomes. Physicians and health-care institutions are advised to collaborate in their attempts to enhance long-term error management and reduce the current number of fatal medical mistakes. The physician mistake disclosure model adds to our current understanding of medical mistake disclosure, and represents a heuristic research and training tool that has the potential to save lives.

Medical mistakes rank as the eighth most common cause of deaths in the United States (McNeill & Walton, 2002). Statistics show that close to 98,000 patients die preventable deaths each year (Kohn, Corrigan, & Donaldson, 2000). This count exceeds the combined number of deaths and injuries that result from motor and air crashes, suicides, falls, poisonings, and drownings (Barach & Small, 2000).

Research suggests that modern technology has created a societal expectation of medical perfection (Hilfiker, 1984). Doctors are assumed to be infallible (Petronio, 2006). Therefore, mistakes are often treated as a moral issue and blamed on aberrant mental processes such as forgetfulness, inattention, poor motivation, carelessness, negligence, and recklessness (Reason, 2000).

Ironically, research has long recognized that medical errors are inevitable because humans are fallible (e.g., Gallagher, Waterman, Ebers, Fraser, & Levinson, 2003; Gorovitz & MacIntyre, 1975; Hilfiker, 1984). However, 50% to 96% of medical errors remain underreported (Barach & Small, 2000), despite the fact that hospital accreditation standards require physicians to inform patients about mistakes in their care (Gallagher et al., 2003). Similarly, healthcare institutions are developing paradoxical mistake-prevention programs that rationalize and justify an error instead of accepting and investigating a mistake (Gallagher et al., 2003; Pietro, Shyavitz, Smith, & Auerbach, 2000; Wu, 2000).

Because doctors, patients, and health-care institutions still deny the existence of medical errors (Wu, 2000), there is no formal guidance on how physicians should deal with mistakes (Chan, Gallagher, Reznick, & Levinson, 2005). Therefore, when a mistake occurs, both doctors and patients face emotional stress (Gallagher et al., 2003). Physicians, in particular, often experience humiliation and shame (Petronio, 2006), peer judgments of incompetence and lack of peer sympathy (Wu, 2000), guilt and anger (Hilfiker, 1984), concerns about their patient’s welfare (Petronio, 2006), and threats of a damaged professional image, job loss, and potential litigation (Reinertsen, 2000).
Medical mistakes have received considerable scholarly attention from a variety of disciplines and professional fields. However, our knowledge about the disclosure of mistakes remains fragmented. To date, studies have primarily focused either on conceptualizations, categorizations, and causes of medical mistakes (e.g., Crigger, 2004; Hilfiker, 1984); perceived threats and concerns associated with the disclosure of medical mistakes (e.g., Brazeau, 1999; Hilfiker, 1984; Hoffmann, Griffith, Greenspan, & Campbell, 2002; Petronio, 2006; Pietro et al., 2000; Reinertsen, 2000; Wu, 2000); or ethical and competent physician responses to medical mistakes (e.g., Allman, 1998; Chan et al., 2005; Crane, 2001; Crigger, 2004).

This article is the first to synthesize existing research on medical mistakes into an integrative disclosure model. The proposed model postulates that physicians conduct a cost–benefit analysis prior to making a decision whether or not to disclose an error to a patient, peer physician, or health-care institution. Because medical errors evoke a variety of perceived threats in physicians (e.g., Hilfiker, 1984; Petronio, 2006; Reinertsen, 2000), a physician’s inherent defensiveness is expected to decrease communication competence in the event of disclosure, eliciting negative short-term and long-term outcomes such as litigations, repeated errors, and prolonged feelings of guilt. The proposed model adds to our limited understanding of mistake disclosure and provides important implications and tools for future research and medical practice.

This article begins with a theoretical conceptualization of medical mistakes and then introduces the key components of the model. These elements will be linked to short-term and long-term outcomes, integrating the variables into a comprehensive theoretical physician mistake disclosure (PMD) model that articulates the complexity of medical mistakes and serves as a heuristic research and training tool (see Figure 1). Finally, implications of the model for future research and medical practice will be discussed.

CONCEPTUALIZING MEDICAL MISTAKES

Medical mistakes have been defined as an “unanticipated negative consequence of a medical intervention” (Mizrahi, 1984, p. 135). Research suggests that medical errors are unintentional and result in negative health outcomes. Furthermore, mistakes involve a physician’s choice and culpability, meaning that a physician could have made a different decision that would not have reflected a mistake (Crigger, 2004).

Defining the parameters that constitute a medical mistake has been a difficult task. Allman (1998) suggests that medical mistakes can involve health consequences associated with the disclosure of medical mistakes (e.g., Brazeau, 1999; Hilfiker, 1984; Hoffmann, Griffith, Greenspan, & Campbell, 2002; Petronio, 2006; Pietro et al., 2000; Reinertsen, 2000; Wu, 2000); or ethical and competent physician responses to medical mistakes (e.g., Allman, 1998; Chan et al., 2005; Crane, 2001; Crigger, 2004).
such by the physician. The terms medical error and medical mistakes will be used interchangeably.

Medical errors have been sorted into three categories (Reason, 1992): (a) rule-based (e.g., using a wrong rule to make a decision), (b) skill-based (e.g., a mistake resulting from an interrupted routine), and (c) knowledge-based (e.g., false assessment of a problem due to lack of knowledge). Hilfiker (1984) adds that failure of will represents the most critical medical mistake, suggesting that physicians at times know the right thing to do but do not follow through with it because they are distracted, pressured, or exhausted.

Allman (1998) suggests that mistakes can occur during diagnosis and treatment. Medical errors reflect an (a) underuse, (b) misuse, or (c) overuse of medical action (Lee, 2002). An underuse occurs when beneficial actions are not carried out. Misuse represents a mistaken decision. Overuse refers to actions that outweigh a medical harm, such as treating a viral infection with an antibiotic.

**TOWARD A MODEL OF PMD**

Physicians often feel exposed, singled out, incompetent (Wu, 2000), humiliated, ashamed (Petronio, 2006), guilty, angry (Hilfiker, 1984), and afraid (Reinertsen, 2000) after committing a medical mistake. These descriptions match emotions that are often discussed in the self-disclosure literature, which evidences that threats of negative evaluation, loss of self-esteem, loss of control, blame, and fear of hurting another person represent reasons for nondisclosure (Rosenfeld, 1979).

Self-disclosure has been associated with numerous beneficial relational outcomes, such as increased trust, liking, attraction, and mental health (Rosenfeld, 1979). However, the model introduced in this article postulates that physicians will weigh certain costs against these benefits before they can make a sound decision whether or not to disclose a medical mistake. The PMD model suggests that such evaluation will occur on multiple levels (see Figure 1).

Truth or Deception: A Cost–Benefit Analysis of Mistake Disclosure

When facing threatening consequences, individuals may perceive that a lie offers greater benefits than truthful disclosure. Specifically, people are likely to consider whether (a) honesty will not achieve their valued goals, (b) deception can achieve these goals, (c) the risk of deception and it being discovered is acceptably low, and (d) the cost of discovery is acceptable (Booth-Butterfield & Booth-Butterfield, 1987). The proposed PMD model suggests that additional sources will interactively influence a physician’s decision whether or not to truthfully disclose a medical mistake. The model integrates multilevel theorizing, which combines individual levels of analysis with higher levels of analysis, assessing the influences of higher-level sources on an individual’s behaviors and actions, and vice versa (Klein, Tosi, & Cannella, 1999).

The first level is factual and involves the severity of the mistake and the physician’s responsibility for the mistake. Studies have shown that medical mistakes can involve consequences that range from inconsequential to extremely severe (Allman, 1998). Furthermore, a physician may not have been able to prevent a mistake by making a different choice (Crigger, 2004). Thus, whether (a) the consequences of the mistake are inconsequential or severe, and (b) the physician is actually at fault are two significant variables on the factual level that are predicted to influence the physician’s decision whether or not to disclose the mistake.

The second theoretical level of influence is individual and contains the physician. Physicians make mistakes for different reasons. Such reasons may include a lack of knowledge, lack of technical skills, failure of judgment, and failure of will (Hilfiker, 1984). Thus, on this level, self-blame and culpability are two factors that are likely to influence a physician’s decision whether or not to disclose a medical mistake.

The third theoretical level is intersubjective and involves the anticipated behaviors and actions of the patient. Studies have shown a large variety of threats commonly associated with medical mistakes, including fear of patient anger (Wu, 2000) and resulting lawsuits (Reinertsen, 2000). Based on the duration and quality of the existing doctor–patient relationship, physicians are expected to predict and evaluate their patient’s reactions to their mistake disclosu. Specifically, the model predicts that physicians will consider a patient’s anger in reaction to their mistake and the possibility of a lawsuit when making a decision whether or not to disclose a mistake.

The fourth and highest theoretical level of influence is collective. This dimension entails the anticipated behaviors and actions of the physician’s peers and health-care institution. Based on the quality of the physician’s peer relationships and previous job evaluations, physicians are likely to evaluate potential threats associated with the mistake disclosure, such as anticipated isolation (e.g., feeling excluded from peer groups), negative evaluations (e.g., being viewed as medically incompetent), humiliation (e.g., feeling ashamed and embarrassed), availability of social support (e.g., having peer sympathy), and potential job loss (see Reinertsen, 2000; Wu, 2000). The model proposes that these factors will influence a physician’s decision to disclose a medical mistake.

It is important to note that multilevel theorizing is not static (Klein et al., 1999). Therefore, physicians are likely to weigh the different levels of analysis interactively. For example, if a physician feels little self-blame and guilt on the individual level, the physician is likely to disclose the
mistake. However, if the cost–benefit analysis is accompanied by anticipated patient anger on the intersubjective level, the two levels will be weighed against each other and thus interactively influence the physician’s disclosure decision.

Additional elements physicians consider during their cost–benefit analysis include the timing, extent, and outlet of the disclosure. Physicians may choose to explain their mistake immediately or to delay their response. Furthermore, they may decide to disclose only certain aspects of their mistake and its medical consequences. Finally, physicians may choose to tell only their peer or their patient, to mediate the disclosure to their patient through a third party, or to delay their conversation with the patient until peer advice is obtained (Allman, 1998).

Multilevel theorizing is also necessary when examining the outcomes of the mistake disclosure. Although multiple sources influence a physician’s disclosure decision, the physician’s actual disclosure in turn affects the patient, peers, and the health-care institution. Thus, the mistake disclosure itself can be viewed as a dyadic microprocess (i.e., between the physician and the patient) that occurs within a macrostructure (i.e., peers and health-care institution). The macrostructure influences the microprocess during the cost–benefit analysis and is in turn influenced by the disclosure.

Facing the Threat: The Disclosure Decision

Physicians vary widely in their approach to disclosing medical mistakes (Chan et al., 2005). Whereas some deny their mistakes, others blame themselves for the outcomes (Crane, 2001). Research on self-disclosure suggests that managing the boundary between self-protection and disclosure can be straining; the greater a perceived burden, the more likely individuals will disclose information (Stiles, 1987). Thus, it can be assumed that physicians will most likely disclose a mistake if their cost–benefit analysis reveals extremely high degrees of perceived threats. Extant research also suggests that physicians often fail to disclose an error because of the emotional stress they commonly associate with medical mistakes (e.g., Gallagher et al., 2003). Thus, it can be assumed that physicians will be more likely to disclose a mistake under minimal levels of threat rather than medium levels of threat. Based on these assumptions, the following proposition (P) is postulated:

P1: Level of perceived threat has a curvilinear relationship with PMD such that high and low levels of threat result in greater likelihood of disclosure and medium levels of threat result in lower likelihood of disclosure.

Given the multilevel nature of the cost–benefit analysis, this proposition yields an abundance of hypotheses that predict a physician’s decision whether or not to disclose a medical mistake. For the purpose of illustrating such interactive effects, only the following three prototypes of possible hypotheses are provided. Because of the lack of research on the explicit relationships, these postulations can be considered underinformed:

H1a: High anticipated patient anger in combination with a high threat of negative evaluation is positively associated with PMD.
H1b: Low culpability in combination with a low threat of embarrassment is positively associated with PMD.
H1c: Medium threat of isolation in combination with a medium threat of lawsuit is negatively associated with PMD.

Nondisclosure represents a two-edged sword. On the one hand, it may entail some beneficial anticipated outcomes. For example, physicians may view it as a chance to escape detrimental consequences such as losing their job or being evaluated negatively. On the other hand, nondisclosure may be detrimental because it prevents efficient error analysis and prevention of future mistakes. In addition, physicians have a legal obligation to disclose errors and could face legal consequences if they are caught (Gallagher et al., 2003).

Nondisclosure often results in forced disclosure when a mistake is discovered. Therefore, the proposed model is mainly concerned with the disclosure process, postulating that a physician’s defensiveness will influence the competence of the mistake disclosure and the valence of resulting outcomes. The following section elaborates communicative defensiveness as the first key component of the disclosure (see Figure 2).

Communicative defensiveness. Communicative defensiveness has been defined as a “hypersensitive affective, cognitive, and interactional tendency to react with exaggerated flight or fight reactions to perceived disrespect or lack of appropriate attention” (Hannawa, Sills, & Spitzberg, 2006, p. 3). A recent study validated the idea that defensive individuals tend to use hypersensitive (e.g., taking criticism personally), flight (e.g., wanting to get even), flight (e.g., ignoring, withdrawing, or changing the topic), or positive face (e.g., wanting to feel respected) reactions to perceived criticism (Hannawa et al., 2006). Because disclosing a medical mistake entails threats of criticism and negative evaluation, the PMD model predicts that defensive physicians will disclose their mistakes in a sensitive, aggressive, withdrawing, or face-saving manner.

Research evidences that it is mainly the experience of low self-esteem that underlies the defensive trait (Hannawa et al., 2006). In addition, defensive individuals have a positive-face concern (Hannawa et al., 2006). Face has been defined as a “claimed sense of desired social self-worth or social image in a relational situation” (Ting-Toomey & Oetzel, 2001, p. 20). Positive face reflects a need for inclusion (i.e., fellowship face) and respect and appreciation for one’s abilities and skills (i.e., competence face; Lim & Bowers,
Self-disclosure can pose a threat to a person’s positive face (Goffman, 1959). Similarly, it can be assumed that disclosing a medical mistake may compromise a physician’s positive face. Because face is emotionally invested, loss of face can often lead to confusion and embarrassment (e.g., Goffman, 1959; Ting-Toomey & Oetzel, 2001), compromising the competence of a disclosure.

Communicative responses of defensive individuals depend on the intensity of the criticism, the extent of the perceived flaw, and the demands placed on a person to maintain favorable impressions (Stamp, Vangelisti, & Daly, 1992). Similarly, the PMD model postulates that a physician’s trait defensiveness will influence how the physician discloses a medical mistake. The model proposes that physicians who use hypersensitive, aggressive, withdrawing, or face-saving communication in reaction to perceived criticism tend to disclose medical mistakes incompetently. The following section discusses competence, the second key component of the disclosure process (see Figure 2).

**Disclosure competence.** Research suggests that a physician’s honesty and humility in reaction to a medical error represent a virtue that facilitates coping, healing, and growth (Brazeau, 1999; Crigger, 2004). The combination of disclosure, apology, and amends has been regarded as an ethical response to a medical mistake. In addition, patients desire a consistent set of information after a harmful error, including 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 (Chan et al., 2005; Crane, 2001; Hoffmann et al., 2002).

Truth-telling is endorsed by multiple ethical and professional organizations (Gallagher et al., 2003; Wu, 2000). Patients and families understand that mistakes may occur, but they do not understand deceit (Hoffmann et al., 2002). Thus, patients are likely to become enraged and consider litigation if their physician did not disclose a mistake truthfully (Brazeau, 1999; Chan et al., 2005; Crane, 2001). However, truthful disclosure represents a two-edged sword. Although it may enhance a patient’s trust in his or her physician’s honesty, physicians often fear to apologize, because an expression of regret may be construed as a case of legal liability by the patient (Crane, 2001; Gallagher et al., 2003).

Despite their professional obligations to disclose medical mistakes truthfully, physicians tend to engage in incompetent responses such as denial, discounting, and distancing (Mizrahi, 1984). Physicians may deny a medical mistake by (a) negating it, (b) repressing it, or (c) redefining it as a non-mistake. Discounting is often used when the magnitude of the mistake is too great to deny. In this case, physicians are likely to (a) justify the mistake, or (b) blame the system, the disease, or the patient. Last but not least, physicians may try to distance themselves from the repercussions of their mistake by lessening their sense of guilt. This approach involves messages such as “I did the best I could” and “everyone makes mistakes” (Mizrahi, 1984).

Physicians’ communication competence has been evaluated on two dimensions: (a) information exchange, and (b) relational sensitivity (Cegala, McGee, & McNeilis, 1996). On an informational exchange level, patients perceive physicians as competent if they are informative about the medical problem, verify that patients understand what they are told, explain medical terms in an understandable manner,
and appear to be knowledgeable about their patients’ medical history and problems. On a relational dimension, patients evaluate physician competence based on open and friendly communication, displayed care, interest, concern, emotional support, and confirmation (Cegala et al., 1996).

The PMD model proposes that competent mistake disclosure occurs on the same dimensions. First, physician defensiveness is expected to decrease the competence of a physician’s informational mistake disclosure (i.e., failing to provide factual explanations and statements of future prevention). Second, the model proposes that physician defensiveness will decrease the competence of a physician’s mistake disclosure on a relational dimension (i.e., failing to provide an apology, humility, and restitution). Thus, highly defensive physicians are predicted to engage in incompetent discounting, distancing, and denial of a medical mistake more often than less defensive physicians. The following proposition summarizes these theoretical predictions:

**P2:** Physician defensiveness is negatively associated with physician disclosure competence.

This proposition yields the following three hypotheses:

**H2a:** Physician defensiveness is negatively associated with informational PMD competence (i.e., factual explanations, statement of future prevention).

**H2b:** Physician defensiveness is negatively associated with relational PMD competence (i.e., apology, humility, and restitution).

**H2c:** Physician defensiveness is positively associated with incompetent mistake disclosure (i.e., discounting, distancing, and denial of a medical mistake).

### Immediate and Long-Term Outcomes of Mistake Disclosure

Several short-term and long-term consequences have been associated with a physician’s mistake disclosure. Competent disclosure (i.e., factual explanations; statement of future prevention, apology, humility, and restitution) may lead to immediate error analysis and long-term error management (Reinertsen, 2000), as well as immediate patient forgiveness (Crane, 2001). Furthermore, research has shown that self-disclosure leads to increased trust, liking, and long-term mental health (Rosenfeld, 1979). Incompetent mistake disclosure, on the other hand, has been linked to initial error avoidance (Pietro et al., 2000), patient anger (Wu, 2000), long-term error repetition (Pietro et al., 2000), malpractice claims (Brazeau, 1999; Chan et al., 2005; Crane, 2001), and prolonged feelings of guilt (Hilfiker, 1984).

Parallel to disclosure competence, the PMD model theorizes that competent PMD will lead to beneficial short-term and long-term outcomes on two dimensions. Competent informational mistake disclosure will likely produce beneficial short-term and long-term informational outcomes (i.e., error analysis, error management). Similarly, the model proposes that competent relational mistake disclosure will increase beneficial short-term and long-term relational outcomes (i.e., forgiveness, increased trust, mental health). The following proposition and resulting hypotheses summarize these predictions:

**P3:** Competent PMD is positively associated with beneficial short-term and long-term outcomes.

**H3a:** Competent informational PMD is positively associated with beneficial short-term and long-term informational outcomes (e.g., error analysis, error management).

**H3b:** Competent relational PMD is positively associated with beneficial short-term and long-term relational outcomes (e.g., forgiveness, increased trust, mental health).

Similarly, the PMD model theorizes that incompetent PMD increases the chance of detrimental short-term and long-term outcomes. Specifically, incompetent informational mistake disclosure likely will result in detrimental short-term and long-term informational outcomes (i.e., error avoidance, error repetition, litigation). At the same time, incompetent relational mistake disclosure will induce detrimental short-term and long-term relational outcomes (e.g., patient anger, prolonged guilt):

**P4:** Competent PMD is negatively associated with detrimental short-term and long-term outcomes.

**H4a:** Competent informational PMD is negatively associated with detrimental short-term and long-term informational outcomes (e.g., error avoidance, error repetition, litigation).

**H4b:** Competent relational PMD is negatively associated with detrimental short-term and long-term relational outcomes (e.g., patient anger, prolonged guilt).

### Interactive Effects in the PMD Model

In examining the key concepts discussed thus far, the PMD model proposes clear bivariate connections among a physician’s trait defensiveness (i.e., hypersensitive, fight, flight, and positive-face reactions to criticism), disclosure competence (i.e., explanation and statement of future prevention; apology, humility, and restitution), and immediate and long-term outcomes (i.e., error analysis and management, patient forgiveness, increased trust, and mental health). The higher the physician’s defensiveness, the less likely the disclosure will be competent. In addition, the less competent the disclosure, the more likely the outcomes are going to be detrimental (see Figure 2). However, such relationships become more theoretically important as they are assembled into an integrative model.

A physician’s competence in disclosing a medical mistake is proposed to mediate the inherent negative relationship between defensiveness and beneficial outcomes.
Specifically, as a defensive physician’s disclosure competence increases, beneficial outcomes are expected to increase. Therefore, competent mistake disclosure on both the informational (i.e., factual explanation and statement of future avoidance) and relational (i.e., apology, humility, and restitution) levels is proposed to be the means through which beneficial rather than detrimental short-term and long-term outcomes are obtained, yielding the following proposition:

P5: The negative association of physician defensiveness with beneficial short-term and long-term outcomes is mediated by physician disclosure competence.

As discussed previously, detrimental or beneficial outcomes of a mistake disclosure affect more than the physician and the doctor–patient relationship. The microlevel disclosure process also affects the collective level in the macrostructure (i.e., peers and health-care institution) that initially influenced the disclosure decision during the cost–benefit analysis. Thus, the mistake disclosure creates a gestalt of outcomes rather than individual effects. This phenomenon carries important theoretical and practical implications, which are discussed next.

IMPLICATIONS OF THE PMD MODEL

In many cases, physicians fail to use recommended mistake-disclosure skills, such as explicitly stating that an error took place, apologizing, and discussing plans for future error prevention (Chan et al., 2005). Failure to communicate clearly and truthfully about medical mistakes can make patients feel angry and misled, frequently resulting in malpractice claims (Chan et al., 2005).

The emotional force of medical mistakes requires a coping mechanism (Penson, Svendsen, Chabner, Lynch, & Levinson, 2001). Existing research suggests that physicians vary widely in their approach to the difficult task of facing a medical mistake (Chan et al., 2005). The proposed PMD model assumes that nondisclosure will eventually result in discovery of a mistake. Therefore, the model encourages physicians to disclose a mistake immediately, because in the midst of perceived threats, they will benefit from control over when, how, where, and to whom to disclose.

Even when mistakes are discussed, it is often to examine the medical facts rather than the feelings of the patient or physician (Wu, 2000). The PMD model suggests that competent mistake disclosure has to occur in both informational and relational dimensions. Specifically, physicians are encouraged to explain to the patient what the error was, why it happened, how it will impact the patient’s health, and how recurrences will be prevented, in an attempt to optimize immediate error assessment and long-term error management. Furthermore, physicians are advised to apologize to the patient and offer restitution for their mistake to increase patient trust and forgiveness, and obtain long-term mental health. The PMD model provides an improved understanding and testable propositions of how physicians disclose medical mistakes to their patients. Therefore, it represents a heuristic tool for future health communication research.

Implications for Research

Future research is needed to empirically validate the theoretical model. Parallel to the multilevel theorizing that was introduced in the cost–benefit analysis section, data collection would have to occur on multiple levels of analysis. Whereas effects of physician defensiveness on disclosure competence may be assessed on an individual level, the outcome variables can be examined only as dyadic effects because they integrate the patient’s reactions.

The micromodel of mistake disclosure mainly focuses on the intersubjective level of analysis, which entails the physician’s communicative defensiveness, its effects on disclosure competence, and the mediating effects of competent disclosure on the physician and the doctor–patient relationship. Once this dyadic micromodel is empirically validated, future research needs to test the macromodel, which includes the cost–benefit analysis and the outcomes of the physician’s disclosure on peers and the health-care institution. The interactional effects of the institution, peers, and patient on the physician’s disclosure and, in turn, the reciprocal impact of the physician’s disclosure on the patient, peers, and the organization would be at the core of this research. A multilevel analysis of the macro-model would entail a gestalt of reciprocal influences on the disclosure decision and disclosure outcomes rather than intersubjective effects.

Multilevel analyses of the micro- and macromodel would be methodologically challenging but theoretically and practically rewarding. Empirical validations would not only advance our existing understanding of medical mistake disclosure, but also create a foundation for important medical assessment and training tools that have the potential to save lives. The following section discusses some preliminary implications for medical practice based on the theoretical model.

Implications for Medical Practice

Medical mistakes cause nearly 98,000 patient deaths each year (Kohn et al., 2000). Nevertheless, to date physicians and medical institutions provide no constructive approach to reducing this count. Instead of analyzing and learning from mistakes, health-care facilities maintain the societal perception of medical errors as an anomaly and a “moral issue” (Reason, 2000), providing promises that “it will never happen again” (Wu, 2000). Similarly, a majority of physicians still choose not to disclose errors despite their legal obligations to do so (Gallagher et al., 2003). In an
attempt to reduce the fatal consequences of medical mistakes, a systematic organizational approach is needed to reduce communicative defensiveness and improve the competence of medical mistake disclosure on a dyadic and collective level. The following paragraphs illustrate how the proposed PMD model can be used to attain these improvements.

Implications for physicians. The PMD model illustrates how communicative defensiveness in reaction to a medical mistake increases the likelihood of incompetent mistake disclosure, which in turn results in detrimental short-term and long-term outcomes. Physicians may consult the proposed model to understand the detrimental effects of their defensiveness, improve their disclosure skills, and decrease the likelihood of detrimental informational and relational outcomes. On an informational level, skillful behaviors entail explicitly disclosing what constituted the error, how it occurred, why it happened, what outcomes it implies, and what measures were taken to prevent it in the future. On a relational dimension, physicians are advised to apologize to the patient and offer restitution (Chan et al., 2005; Crane, 2001; Hoffmann et al., 2002). As the model illustrates, denial, discounting, and distancing (Mizrahi, 1984) are incompetent approaches to mistake disclosure because they rationalize and justify rather than analyze the error (Pietro et al., 2000).

Despite the agreement on competent mistake disclosure in the literature, physicians often decide not to disclose an error (Barach & Small, 2000). Furthermore, a majority of physicians do not receive any education or training in disclosing errors to their patients (Chan et al., 2005). This trend may be explained by the extreme emotional distress physicians commonly associate with medical mistakes (Gallagher et al., 2003; Hilfiker, 1984; Petronio, 2006; Wu, 2000). Emotional anguish and perceived threats may overrule their legal obligations to disclose. The PMD model aims to illustrate these emotional effects in a rational manner and therefore represents a helpful source for physicians who are facing the threatening consequences of a medical mistake.

Astonishingly, it appears to be the medical institutions themselves that pose a majority of the threats to physicians (Wu, 2000). Instead of providing a secure organizational environment, medical facilities tend to make the experience of a medical mistake even more distressing (Chan et al., 2005; Wu, 2000). This incompetent organizational approach to mistake management increases the likelihood of high physician defensiveness and consequent incompetent disclosure, augmenting the risk of detrimental outcomes such as litigation and error repetition. Therefore, health-care institutions need to enhance their own competence for managing medical mistakes.

Implications for health-care institutions. Health-care institutions are advised to consult the PMD model as a foundation for developing an organizational support system for physicians. Physicians often face mental anguish and emotional suffering after committing a medical mistake (Crigger, 2004). In addition to this distress, physicians have difficulty finding social support (Gallagher et al., 2003). Paradoxically, a majority of the perceived threats stem from the immediate professional environment that seeks to blame, judge, and evaluate physicians negatively for their mistake (Wu, 2000).

Unfortunately, medical mistakes are still not accepted in the medical field. Instead, discussion of errors is avoided, and if they are discussed, it is usually done so on a factual rather than emotional level (Wu, 2000). As a result, physicians often suffer severe long-term consequences such as burnout, mental distress, and drug addiction (Wu, 2000), which in turn make medical mistakes more likely to recur.

Research evidences that physicians tend to consult peers for informational support and significant others for emotional support (Allman, 1998). Medical institutions need to create an organizational culture that bridges this gap. Instead of criticism and blame, health-care institutions need to promote a climate of cohesive sympathy and support. Medical mistakes represent a fundamental aspect of learning. Therefore, institutions have to provide guidance to physicians during this time of distress and help them cope and learn from their mistake.

In line with the PMD model, institutional guidance needs to occur on two dimensions. On an informational level, facilities need to encourage physicians to analyze the cause of their mistake. Research suggests that mistakes tend to be rule-based, skill-based, knowledge-based (Reason, 1992), or will-based (Hilfiker, 1984). Furthermore, medical errors generally reflect either an underuse, misuse, or overuse of medical action (Lee, 2002). An analytical assessment of a medical mistake will clarify the error and help institutions and physicians to learn from the mistake.

On a relational dimension, institutions need to afford an emotional support system that provides a cultural environment of sympathy and helps physicians cope with the mental distress commonly associated with medical mistakes. Providing physicians with this support will increase the likelihood that physicians will disclose their mistakes in a more competent manner, and decrease the likelihood of detrimental outcomes.

Truthful disclosure also reflects a two-edged sword for medical institutions. Research suggests that consumerism has accessed the medical field. Patients are now able to independently research their diagnosis and treatment options, demand particular regimens, implement self-treatments, and shop for doctors (Cline, 2003). This challenge forces medical institutions to sell their services more competitively to maintain their client base. In this context, portraying medical error as inevitable may seem threatening. On the other hand, presenting doctors as fallible would increase the likelihood of physician disclosure and disclosure competence, resulting in more positive outcomes.
Institutions need to weigh these costs and benefits cautiously, keeping in mind the current number of fatal mistakes. Research suggests that truthful disclosure generally seems to be the better solution. Despite the threat of competition, honest disclosure may increase patient trust and mental health. Furthermore, a realistic portrayal of medical fallibility is likely to correct society’s problematic expectations of medical perfection (Crigger, 2004; Petronio, 2006; Wu, 2000), which would potentially decrease threats of litigation in response to a medical mistake (Brazeau, 1999; Chan et al., 2005; Crane, 2001), increase the amount and competency of physician disclosure, and decrease the likelihood of detrimental outcomes. Physicians are nested within health-care institutions. Therefore, a healthy organizational climate is needed to support competent mistake disclosure and improve the efficiency of long-term error management.

CONCLUSION

The PMD model introduced in this article postulated that physicians conduct a cost–benefit analysis by weighing four interactive levels of influence prior to deciding whether or not to disclose a medical mistake. In the event of disclosure, the micromodel illustrated how a combination of informational and relational disclosure competence mediates the detrimental effects of physician defensiveness on immediate and long-term outcomes. This article provided directions for future research and discussed practical implications of the PMD model for physicians and health-care institutions. Most important, physicians and health-care institutions were advised to collaborate in their attempts to enhance long-term error management and reduce the current number of fatal medical mistakes.

REFERENCES


