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Error Disclosure Algorithms: How to Disclose Colleague's Medical Error at Individual and Organizational Levels

Jannat Mashayekhi[1], Mina Forouzandeh[2], Saeedeh Saeedi Tehrani[2]*

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Abstract

Background: Medical error is one of the most important causes of mortality and morbidity in the health care system. Considering the significance of medical error management in the healthcare system, error disclosure is an imperative moral responsibility of medical and healthcare professionals from medical ethics experts' perspective. In literature, no or inadequate protocols were suggested for disclosing colleague's medical error; and hence, this study was conducted to provide two algorithms for colleague's medical error disclosure at individual and organizational levels.

Methods: This study conducted a narrative review on several valid Internet databases, including PubMed, Science Direct, and Scopus. First, the literature on the colleague's error was reviewed using articles of the last 20 years focusing on medical errors and error disclosure keywords. Next, two algorithms were developed for the colleague's error disclosure for individuals and with the assistance of organizations, respectively.

Results: If we personally notice a colleague's error at an individual level, we should plan for a conversation to encourage the colleague to inform the patient or the related organization about the error. If we notice a medical error from a colleague relating to an organization, we should decide based on circumstances considering the organization's responsible parties for handling error disclosure.

Conclusion: This study proposes a simple protocol for detecting peer error at the individual level and at the organizational level, using the existing literature. However, the improvement of these types of methods requires analysis of the specific conditions of each health system.

Keywords: Medical Error, Colleague Medical Error, Medical Error Disclosure, Healthcare System

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Introduction

Medical error is one of the major challenges of the healthcare system worldwide. Death due to medical errors is the third leading cause of death after heart disease and cancer, and up to 440,000 deaths are reported annually due to medical errors in US hospitals (1)

Medical error is also a challenge in Eastern Mediterranean countries such as Iran (approximately 4.4 million medical errors have occurred in Eastern Mediterranean

Corresponding author: Dr Saeedeh Saeedi Tehrani, saeeditehrani.s@iums.ac.ir

1. Medical Ethics Center, Tehran University of Medical Science, Tehran, Iran
2. Medical Ethics Department, Iran University of Medical Science, Tehran, Iran

↑What is "already known" in this topic:
Medical error is one of the most important causes of mortality and morbidity in the health care system. Considering the significance of medical error management in the healthcare system, error disclosure is an imperative moral responsibility of medical and healthcare professionals from medical ethics experts' perspective.

→What this article adds:
This study proposes a simple ethical protocol for detecting peer error, at the individual level and at the organizational level, using the existing literature. However, the improvement of these types of methods requires analysis of the specific conditions of each health system.

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countries) (2). The high rate of medical error in some Iranian hospitals confirms the mentioned challenge, which is more common in public hospitals (3). As far as the reports say, one in 150 deaths in hospitals is due to medical error (4).

Although most hospitals have a medical error registration system with a voluntary and mandatory approach, its prevalence is still unknown. In addition, 24% of physician-related death complaints are related to medical errors. (5, 6).

These shocking statistics indicate the high frequency of medical error occurrences and the importance of managing them. However, apart from error management subject, ethical considerations after error occurrence, especially physicians' moral duty to disclose medical errors, have always been of paramount significance for medical ethics experts.

Medical error disclosure is an instance of truthtelling in physician-patient relationships and is aimed at respecting patient autonomy (7). Failure to disclose errors can also seriously damage public trust in the medical and healthcare profession. Although physicians admit error disclosure as a moral duty, they are reluctant to report errors, and disclosure occurs in less than half of the cases (7). Previous studies report error disclosure rates to be 24%, 32%, and 31% in three different circumstances (8), revealing that practically a large gap exists between admittance and disclosure; Such low reported error disclosure rates are far from what is theoretically expected and practically acceptable.

One of the important factors preventing error disclosure is a lack of knowledge of physicians regarding error disclosure procedures and error disclosure consequences, about which education can be helpful. A significant challenge of error disclosure lies in how to handle a colleague's medical error. Physicians are nervous about their confrontations with colleagues' errors and do not know their exact obligation. The medical tradition relies on keeping professional secrets and the brotherhood of physicians (9); and it cultivates distinctive respect for colleagues and hence does not encourage disclosure (10).

As a historical norm, a decent colleague does not disclose a colleague's secret; in the casual term, a decent colleague has his or her colleague's back (1). However, medical professional commitment does not agree with this approach and considers it unprofessional because this commitment place patients' welfare above the medical and healthcare professionals' self-interest. The questions that need to be answered are as follows: (i) What should be done in case of a colleague's medical error, especially a professional colleague; and (ii) How, in what order, and when should medical professionals disclose colleague's error.

This article seeks to investigate the issue of medical error, to find the causes of errors and obstacles to error disclosure, as well as to focus on how to manage colleague's errors. Since in Iran, how to manage and disclose colleague's medical errors has not been well studied, this article aims to provide appropriate practical solutions for managing colleague's errors in various situations.

Methods

The stages involved in this study are as follows: First, Scopus, PubMed, Google Scholar databases were searched with the following keywords: medical error, causes of medical errors, disclosure of medical error, colleague's medical error and peer medical error. Then, the articles of the last 20 years relevant to the study subject were selected. In addition, available e-books and articles in Persian were also searched using the aforementioned keywords. Due to the small number of articles on how to disclose colleague's errors, all existing articles in this field were used . The articles were evaluated and reviewed according to the questions raised in the category of Table 1. Finally, we proposed two algorithms on how to handle the colleague's error at individual and organizational levels, respectively.

Results

Definitions of Medical Error

Various definitions for medical error have been presented: (i) Unintended action (either act or omission of an act) or an action not leading to an acceptable result (7); (ii) Preventable side effects of therapeutic activities (11); and, (iii) Act or omission of an act with potentially negative consequences for the patient, where scientific judges and experts consider it a misdiagnosis at occurrence time (12). Intentional and irresponsible actions are not included in the above definitions .Identifying the causes of medical errors is necessary as it helps the healthcare system to manage error consequences and minimize error frequency. Physicians cognizant of common causes of such errors can be more prepared to prevent those errors (13). In addition, managers try to find error-causing circumstances, falling into several categories: (i) Fatigue due to long working hours, as an important internal factor at the individual

Table 1. Analytical Questions, Responses From the Literature, and Attributes of the Concept of handle colleague's error

Antecedents	Attributes	Outcomes
1. Why do we handle colleague's error? 2. What keeps us from handling colleague's error? 3. What are the consequences of not handling colleague's error? 4. What is there to gain by handle colleague's error?	1. What is a full colleague's error management? 2. What are the essential components of a colleague's error management for it to Work? 3. Why do colleague's error disclosers fail? 4. Can you show empathy without colleague's error discloser? 5. Can you disclose without remorse? 6. Can be colleague's error management be taught?	1. What comes after the colleague's error management? 2. Do colleague's error management need to be documented? 3. Can the patient-provider relationship be repaired in colleague's error management?

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level (14); (ii) Punishment hierarchy in medicine; (iii) Negligence and inadvertency (most common) (15); (iv) Lack of knowledge; (v) Lack of education; (vi) Premature diagnostic process; (vii) Aggressive managing of patients (16); and, (viii) Communication problems of service providers such as lack of communication, lack of medical records, weak professional reporting as well as communication among providers, patients and their family (e.g.), not using a qualified translator when necessary for the patient) (17).

These factors and other possible causes of errors can be summarized into errors related to individuals, available tools, system defects, and patient-related factors, respectively.

However, regardless of the error causes, physicians' reactions to errors are severe guilt-feeling (18) as well as distress, self-criticism, depression, self-confidence loss, sleep inability, and incapability to communicate with colleagues, respectively (19). Furthermore, physicians often experience chronic headaches, fatigue, anxiety, or runaway behaviors, which all can be onsets of addictions. Symptoms of occupational burnout, which in turn may exacerbate physical health decline, can follow medical error occurrence (20).

Without proper error management mechanisms, physicians may find inappropriate approaches to protect themselves. They may become furious or deny their mistakes while attributing them to others; they may become defensive; they may aggressively and mercilessly communicate with the patient and even blame the patient or other healthcare team members. Eventually, physicians may be deeply and acrimoniously affected, lose their strength, and seek solace in alcohol or drugs (20). In Iran, too, doctors feel guilty, ashamed, scared, humiliated, and have low self-esteem after making a medical error. Such mental stresses are reasons for not disclosing errors. Two methods to handle these pressures are systemic management and communication improvement (16). Managers' focus should shift from individual level to system level. Exclusively Focusing on individual discipline leads to repeating errors, thus increasing error frequency (21). Hence, without systemic consideration and attitude, error frequency cannot be reduced.

Medical Error Disclosure

Almost all professional organizations and medical ethics experts have made it a moral duty to disclose errors to patients. Such consensus regarding physicians' moral duty is because they should tell the truth to the patient, disclose the error to the patient, and respect patient autonomy. In addition, physicians are responsible for informed decision-making provisions for patients because their explanations help patients to consider options, make informed and conscious decisions, and understand the consequences of each decision (22). By providing the patient with information regarding the treatment process and plan, the patient's safety level will also enhance, the likelihood of further errors will be reduced, and the number of lawsuits against physicians will be decreased (8).

Some studies have considered the role of error detection to be effective in controlling medical errors (23, 24). Some have mentioned error reporting or managing error of a colleague as effective in preventing error (25).

Furthermore, according to the principle of justice, the patient harmed because of an error should be compensated. Even physicians who themselves or their families were victims of medical errors wanted all error occurrence details to be revealed to them (26). However, studies indicate a large gap between this principle and physicians' practice; statistics demonstrate less than 50% error disclosure rate; and in some cases, physicians disclosing errors does not reveal the entire details regarding the error as happened in reality (8).

The causes of such gap can be due to several reasons: (i) Post-error mental stress as previously discussed; (ii) Physicians' suspicions about the effectiveness of error disclosure for the patient and his or her family; (iii) Physicians' fear of legal responsibilities due to the probable complaints filed against them. This factor is one of the most significant barriers preventing error disclosure and is mostly related to the severity of the damage caused by the error; (iv) Physicians' fear of inappropriate confrontations from patient's family and companions; teaching communication skills to physicians can significantly reduce such encounters; and, (v) Physicians' fear of losing reputation and future patient referrals. Also, in Iran, health insurance does not fully support the doctor, and this is an obstacle to disclosure.

The challenges of truthtelling to patients are the causes of such concerns and doubts: (i) How should physicians report harmful errors to patients; (ii) Do patients really want to know about the errors; (iii) If so, what information do patients require; (iv) In case of critically-ill patients, what changes do they need to consider in error disclosure; (v) Should cultural differences be considered in disclosure; and, (vi) In family-centered cultures, should the error be disclosed to patients or to their families.

This belief in physicians that they should not make any mistake in their work reinforces the above-mentioned reasons (27). Both the healthcare system and medical professionals should accept that practicing medicine with no error is almost impossible, although efforts to minimize error occurrence are constantly required as much as humanly achievable.

Colleague's Error Disclosure

When physicians face their colleagues' errors, they find themselves in a difficult moral situation. They ruminate how they would react if this error happened to them. They do not want their colleagues to have frustrating legal issues. In some cases, they are concerned that they will make the liable colleague furious and the liable colleague retaliate in a similar situation (28). Sometimes physicians do not exactly know what happened to the patient and do not want to take the time to resolve the incidents appropriately. Physicians are interdependent at work; a physician who breaks the code of silence will be penalized and will not receive patient referrals. Furthermore, issues concerning cultural differences, gender, race, and seniority can also increase reluctance to error disclosure (28).

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However, the healthcare system is patient-centered and all services must be planned on the most beneficence for patients. Depriving the patients of access to their related information (e.g., error occurrence details) is not only unprofessional but can also potentially expose them to greater harm and endanger their safety. By disclosing errors, the harmed patients can knowingly decide about their physician choices or treatment plans. In addition, failure to disclose errors will undermine patients' trust in their physicians, and hence in the medical and healthcare profession (28). But in urgent situations that medical error has occurred, disclosure should be assayed and counsultby expert physician is necessary.

The American Medical Association (AMA) also advocates disclosure of errors made by fellow physicians: Physicians must uphold the profession's standards, be honest in all their professional interactions, and strive to report other physicians' defects in personality, competence, or deception so that those defects can be resolved or compensated (29).

How to Disclose Colleague's Error

Despite the abundant literature on disclosing errors to the harmed patient, a limited number of studies have focused on how to disclose colleague's errors (30). In case of a colleague's error, the error occurrence details should be discovered through communicating with the liable physician. To communicate effectively to discover the error occurrence's real details, the inspector physician can reveal personal experience of mistakes to reduce the sense of isolation felt by the liable colleague (18). Concerns regarding the liable colleague's reaction, time constraints, and difficulty coordinating meetings may deter such conversations (26); and, the inspector physician may be tempted to obtain information from the patient's file to save cooperation appearances. This approach, however, contradicts the principle of loyalty (26) and can even be held as evidence against the inspector physician for abuse in information gathering without the liable colleague's permission. The first step in detecting a colleague's error is to design a healthy and friendly environment for the liable colleague to communicate regarding the error occurrence details. The progress of the disclosure process depends on the outcomes of the conversation with the liable colleague and the level of agreement achieved through the conversation. In such communications, several scenarios may happen:

(i) If the liable physician agrees to the error occurrence , he or she should be encouraged to disclose the error. They can discuss whether disclosure needs to proceed through the organizational channel or through the liable physician. In case of mental stresses, the liable physician should be emotionally supported and told that even well-known and outstanding physicians have made and can make big mistakes (27).

(ii) If the liable physician does not agree to error disclosure, the inspector physician should warn him or her that he or she is obliged to report the error to the patient or to the related organization (28).

(iii) Both physicians may agree that a harmful error has not happened, and hence the process can be stopped (31).

If the liable physician does not agree to error disclosure, the inspector physician should warn him or her that he or she is obliged to report the error to the patient or to the related organization (28). However, a lack of guidance on how to disclose errors adds to physicians' confusion. With the help of experts in bioethics, patient safety, health policy as well as several other fields, New England magazine published a guideline in 2013 for physicians on how to disclose colleague's errors. This guide emphasizes the physicians' commitment to not being indifferent to colleague's errors, and on the physicians' professional responsibility for direct interaction with and observation of colleague's work. Surveillance, supervision, and appraisal should be considered as part of medical professional responsibility in assessment within the medical profession intending to monitor, manage, and resolve the errors made by its members (31).

The conversation with the liable physician should be designed such that the liable colleague's defensiveness is minimized, contemptuous judgment is avoided, and the transaction is based on discretion and consent. The person involved in disclosing the error should have the strongest ongoing contact with the patient, the best understanding of the patient's current care, and the most experience of error disclosure in complex situations (31).

For managing medical error (at indivital level), this algorithm can be suggested according to the points mentioned in the sources (Fig. 1).

Organizational Management of Medical Error

The concept of professional conduct and performance is associated with the concept of a professional organization. Organizations should be adequately prepared for disclosing colleague's errors, managing the error disclosure process, and maintaining the confidentiality of medical errors and their disclosure. Organizations should support peer-to-peer conversations about errors and strengthen practical behavioral patterns in peer-to-peer discussion among colleagues through a senior colleague's supervision or participation. To reduce physicians' fear of the punitive process, organizations should provide responses to members' questions regarding errors and error disclosure through consulting with morbidity and mortality committees and expert advisors. Organizations should also be so supportive of error management that their members can share their mistakes and disclose errors without serious anxiety or stress. Furthermore, the helpful regulation of insurance companies should also be employed to advocate error disclosure and compensate for error disclosure consequences.

The guide on colleague's error disclosure (31) proposes customized approaches for members in the healthcare team's different divisions. In case of an error made by a colleague who co-participated or is co-participating regarding the patient who was or is at your care (e.g., a counselor or a colleague from another department of the hospital), both parties should share the responsibility and co-participate in error disclosure conversation. In case of an error made by a trainee or an intra-professional colleague in the patient care team (e.g., a nurse or a pharma-

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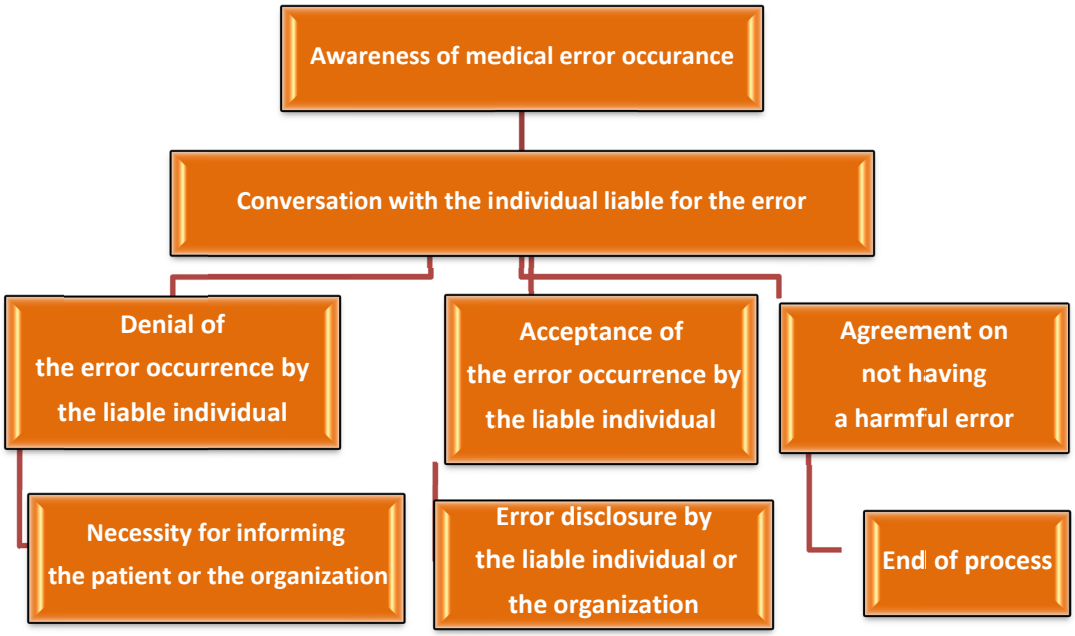

Fig. 1. Process of handling colleague's medical error at the individual level

cist), the patient's attending physician, who most likely has more error disclosure experience, co-participates with the liable colleague in error disclosure conversation.

In case of an error made by a physician who has no direct contact with the patient (e.g., pathologist, radiologist) at the same hospital or healthcare organization where the patient is under care, the patient's attending physician co-participates with the liable physician in error disclosure conversation.

The error can be unrelated to the current hospital or current healthcare organization that provides therapeutic care to the patient (e.g., while viewing the patient's X-ray, a radiologist notices a foreign object left over from the patient's previous surgery). In this case, the medical director (or senior director) of the current hospital or healthcare organization follows the case, after consulting with the liable parties at the previous hospital or healthcare organization, and the patient's current attending physician co-participate in error disclosure conversation (Fig. 2).

Discussion

In any process where the human factors play a role, a certain percentage of error is considered realistic. Hence, continuous efforts are made to correct these processes to minimize the percentage of error. Medicine as a process of diagnosis, treatment, prevention, and rehabilitation has long been faced with error occurrences that can increase the hospitalization period, morbidity, disability , or death (32). Despite the support of technological advances in medicine, medical errors are still one of the most challenging areas of medical management trying to reduce the percentage of error. A lack of practical approaches in error management and resolution make the liable physicians conceal error; such tendency to conceal error has been confirmed by the low error disclosure rates reported in previous studies (33, 34).

Identifying, managing, and disclosing medical errors are among the professional responsibilities of physicians (35-37).

The pressure of medical errors should not be imposed on patients and their families. Medical errors should be disclosed to patients; proper apologies should be made; and compensation should be provided to the harmed patients (38-40).

To maintain public trust in the medical and healthcare professional community, this community, through intra-professional assessment, management, and resolution, should support liable members and compensate for the consequences of their error (41-43). Enhancing physicians' communication skills and supporting liable physicians can improve the error disclosure process. Such enhancement and support can be done using an organizational approach through organized and lawful teamwork (44, 45). Furthermore, organizations' policy should be shifted from a punitive system for liable physicians to coordination among the healthcare system's different divisions to minimize errors and their consequences for the harmed patients. College medical error is one of the main challenges for professional physicians. Usually it is recommended to disclose the error,but there is no efficient method for how to do it.

This study tried to provide ethical solutions for college error management (individual-organizational), and since there is no specific guideline in this regard in Iran and only in article 97 of the professional ethics guide related to the medical system, there is a brief reference to peer error management. (In that part, it is only mentioned that while making every effort to maintain the dignity and professional status of the said colleague, from refrain from any unprofessional judgments and comments, and while

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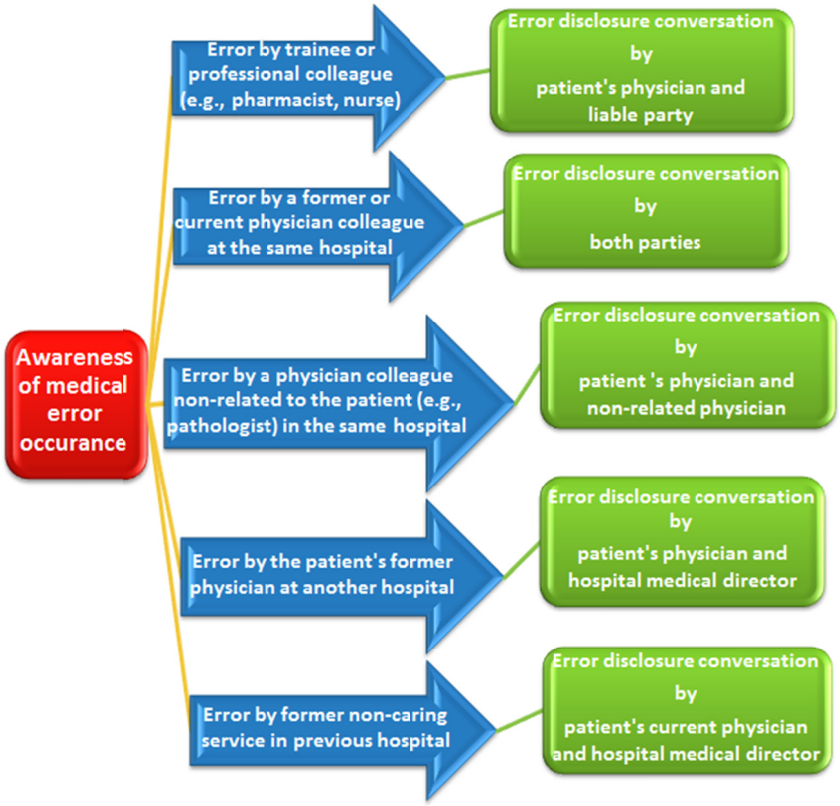

Fig. 2. Organizational management process of colleague medical error

guiding the patient, refer him to the competent authorities) (46).

Conclusion

As a moral duty, medical error disclosure can directly or indirectly affect the quality of patient care. Organization view to medical error management is very necessary subject must be addressed it. Having clearly adequate guidelines for handling medical and healthcare professionals' errors will protect the entire healthcare system from confusion and awkwardness, and thereby medical and health care professionals can appropriately manage medical errors made by themselves and their colleagues. Such error management approaches should be updated through ongoing research by reviewing experts' most recent perspectives. It is suggested that a suitable guide in this field be explained at the national level.,

Conflict of Interests

The authors declare that they have no competing interests.

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