

Medical Errors: The Impact and Way Out

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Abstract:

All human activities are dotted with errors of kinds. Medical errors are an unfortunate but inescapable part of medical practice. Errors, no matter the nomenclature, typically occur from the convergence of multiple contributing factors. The common types of medical error discussed in the write-up were misdiagnosis, billing errors, incorrect medication/incorrect dosage, incorrectly identifying a patient, and surgical errors. Causes of medical error were classified under communication issue, patients' factors, health workers factors and other factors while causes of surgical error identified were incompetence, insufficient staffing, fatigue, drugs or alcohol, lack of communication, and prescription medication errors. The impacts of medical error could be on the patients, healthcare providers or hospitals. It is important for the patient to have adequate knowledge of health issues, and the patients should not be afraid to push back if something does not seem right. That persistence might just save the patient's life.

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Introduction

Medical error is defined as a “preventable adverse effect of medical care, whether or not it is evident or harmful to the patient (Institute of Medicine, 2000). All human activities are dotted with errors of kinds. So it is in medicine. Medical errors are an unfortunate but inescapable part of medical practice. As much as everyone accepts that errors are Unavoidable in medical practice, it is expected that such must be unavoidable errors and they should occur rarely. Globally, it is estimated that 142,000 people died in 2013 from adverse effects of medical treatment (Frellick, 2016). Medical errors are a serious public health problem and the third leading cause of death (Frellick, 2016). It is challenging to uncover a consistent cause of errors and, even if found, to provide a consistent viable solution that minimizes the chances of a recurrent event (Institute of Medicine, 2000).

Many healthcare institutions have rigid policies in place that also create an adversarial environment. This can cause staff to hesitate to report an error, minimize the problem, or even fail to document the issue. These actions or lack thereof can contribute to an evolving cycle of medical errors. When these errors come to light, they can tarnish the reputation of the healthcare institution and the worker (Hayward & Hofer, 2001). All providers know medical errors create a serious public health problem that poses a substantial threat to patient safety. Yet, one of the most challenging unanswered questions is "What constitutes a medical error?" The answer to this basic question has not been clearly established. Due to unclear definitions, “medical errors” are difficult to scientifically measure.

Healthcare providers want to improve outcomes while reducing the risk of patient harm. Despite provider best efforts, medical error rates remain high with significant disability and death. Preventable medical errors contribute substantially to healthcare costs, including higher health insurance costs per person expenses. Only by health professionals working together will the cost and injury associated with medical errors be mitigated. Errors, no matter the nomenclature, typically occur from the convergence of multiple contributing factors (Anderson, 2005). Public and legislative intolerance for medical errors typically illustrates a lack of understanding that some errors may not, in fact, be preventable with current technology or the resources available to the practitioner. Human factors are always a problem, and identifying errors permits improvement strategies to be undertaken. In particular, blaming or punishing individuals for errors due to systemic causes do not address the causes nor prevent a repetition of the error. The trend is for patient safety experts to focus on improving the safety of health care systems to reduce the probability of errors and mitigate their effects rather than focus on an individual’s actions. Medical errors in hospitals have become all too common nowadays. And although it can be tough to prevent them, it’s possible in many cases, especially if hospitals are willing to take various approaches to solving the problem (Abrahamson & Anderson, 2017).

Types and Causes of Medical Errors

Most common types of medical error according to Clapper and Ching (2020) are:

1. Misdiagnosis
2. Billing errors
3. Incorrect medication/incorrect dosage
4. Incorrectly identifying a patient



5. Surgical errors
1. **Misdiagnosis:** Misdiagnosis occurs when a patient with one illness or disease is told they have a different illness or disease. The following health issues were the most commonly misdiagnosed. They are stroke, heart attack, spinal epidural abscess, pulmonary embolism, necrotizing fasciitis, meningitis, testicular torsion, subarachnoid hemorrhage, septicemia, lung cancer, fractures and appendicitis (Atanasov, et al, 2020).
2. **Billing Errors:** Billing errors happen when patients are charged for procedures they did not receive, or are charged for staying longer at an in-patient facility than they actually did, or correct procedures/stays have been coded incorrectly due to data entry errors. Most medical bills, around 80 percent of them, contain some type of error, and the errors are rarely in favor of the patient. According to one report, there are around 70,000 diagnosis codes that could be used, and around 71,000 procedure codes available (Alam, 2016). That makes errors nearly inevitable.
3. **Patient Misidentification:** Believe it or not, incorrect identification of patients occurs frequently enough to make this list. You may think it would not be possible to confuse which patient is having which procedure performed, or even which patient the doctor is there to see, but it happens (Daniel & Makary, 2016).
4. **Surgical Error:** According to data from 2012, surgical errors resulted in \$1.3 billion in medical malpractice payouts annually. The annual number of surgical errors rose above 4,000 and was nearly all preventable. It is based also called “never events,” which means the errors never should have happened in the first place. These include things like leaving a surgical tool inside the patient, or operating on the wrong limb. Majority of surgical errors only resulted in temporary injuries (59 percent), nearly 40 percent of these errors resulted in permanent injuries or death. Less than two percent of surgical errors resulted in no injury (Daniel & Makary, 2016). And most of the surgeons who committed surgical errors (two-thirds) had been involved in at least two prior medical malpractice actions. Surgical errors include:
 - a. **Wrong site:** When a doctor performs a surgery, for example on the left leg instead of the right, it is known as a wrong site surgery. This can be devastating for the patient, as the doctor created a new injury instead of treating an existing one.
 - b. **Wrong patient:** An event that should never occur, performing surgery on the wrong patient happens more than one might think. If an individual receives a surgery that they were not supposed to have, the results could be catastrophic.
 - c. **Object left in body:** While it may seem bizarre, surgeons have left objects in a patient’s body during surgery. Doctors can miss items such as gauze or medical equipment during closing, but if left in the body it can do serious damage to the patient.
 - d. **Wrong procedure:** There are many reasons why a medical professional could perform the wrong procedure on a patient, but most end in a patient receiving more harm than help.



- e. Anesthesia error: Administering and monitoring a patient's anesthesia during surgery is an important job. If not done properly, a patient can face serious damages to organs such as the brain or heart.

Other surgical errors according to Kaldjian et al (2007) include failure to diagnose a dangerous medical condition during surgery; operating on the wrong part of a patient's body; damaging healthy organs during surgery; leaving instruments in a patient's body following surgery; mistakes made during emergency surgery; anesthesia errors during surgery; failure to prevent or fix complications during surgery; failure to properly monitor a patient for issues such as infection or internal bleeding following surgery; unnecessary or inappropriate surgeries; anesthesia mistakes, such as using too much or not being mindful of a patient's allergies; cutting an organ or another part of the body by mistake; instruments and other foreign objects left inside patients; surgical infections; and pre- or postoperative mistakes, such as failure to address complications resulting from surgery.

Causes of medical errors according to Kopec et al (2006) include

- i. **Communication Issue:** Poor communication, unclear lines of authority of physicians, nurses, and other care providers. Disconnected reporting systems within a hospital can result in fragmented systems in which numerous hand-offs of patients results in lack of coordination and errors. In addition, inadequate systems to share information about errors. Inadequate communication between healthcare providers, or between providers and the patient and family members. Not communicating important information such as patient allergies, diagnosis/co-morbid conditions, weight, and so on
- ii. **Patients' Factors:** Patient actions or inactions may also contribute significantly to medical errors; intimidation or reluctance to ask for help or clarification; using medications without complete knowledge of the medication;
- iii. **Health Workers Factors:** Improper documentation, illegible handwriting, spelling errors; failure to double check high-alert medications before dispensing or administering; poor supervision; deficiencies in education, training, orientation, and experience; inexperienced physicians and nurses; and Failure to educate patients
- iv. **Other Factors:** Cost-cutting measures by hospitals in response to reimbursement cutbacks can compromise patient safety; infrastructure failure; sleep deprivation; drug names that look alike or sound alike are also a problem; complex or urgent care; inadequate nurse-to-patient ratios; complicated technologies

Causes of surgical error according to Robertson and Long (2018) include

- i. Incompetence. If the surgeon is not properly trained, or not trained to handle the specific operation involved, he or she is incompetent and should not perform the procedure. Although this seems common sense, plenty of surgeons commit malpractice every year because they overestimate their ability to successfully handle the operation.
- ii. Insufficient staffing. Sometimes the mistake is due to not having enough support staff, such as operating room nurses and others who are responsible for patient care. But



- staffing mistakes can also harm the patient before or after the procedure. For example, a nurse may be overworked and fail to check on the status of a patient after surgery.
- iii. Fatigue. Doctors are often overworked and don't get the rest they need to safely perform an operation. Surgeries require absolute focus and attention, which is lacking when the mind and body are tired.
 - iv. Drugs or alcohol. A shocking number of surgeons are under the influence of drugs or alcohol when they perform their procedures. This clearly is irresponsible behavior and is almost irrefutable evidence of medical malpractice.
 - v. Lack of communication. Errors often happen in the medical setting due to bad communication among doctors, nurses, and other professionals. A seemingly minor error, like failing to fully document a patient's allergies, can have disastrous consequences on the operating table. Mistakes like these are frequently due to negligence.
 - vi. Prescription medication errors. Patients often have to take prescription medications leading up to or after their surgeries. Often these medications are necessary to prevent infections after the operation.

Impact of Medical Errors

Globally, it is estimated that 142,000 people died in 2013 from adverse effects of medical treatment; in 1990, the number was 94,000 (Frellick, 2016). According to recent medical malpractice statistics, in the United States, at least 250,000 people have died annually of medical errors and negligence (Clapper & Ching, 2020). A 2000 Institute of Medicine report estimated that medical errors result in between 44,000 and 98,000 preventable deaths and 1,000,000 excess injuries each year in U.S. hospitals. In the UK, a 2000 study found that an estimated 850,000 medical errors occur each year, costing over £2 billion. Some researchers questioned the accuracy of the IOM study, criticizing the statistical handling of measurement errors in the report, significant subjectivity in determining which deaths were "avoidable" or due to medical error, and an erroneous assumption that 100% of patients would have survived if optimal care had been provided (Weingart, et al, 2000).

A 2001 study estimated that for roughly every 10,000 patients admitted to the hospital, one patient died who would have lived for three months or more in good cognitive health had "optimal" care been provided (Hayward & Hofer, 2001). A 2006 follow-up to the IOM study found that medication errors are among the most common medical mistakes, harming at least 1.5 million people every year. According to the study, 400,000 preventable drug-related injuries occur each year in hospitals, 800,000 in long-term care settings, and roughly 530,000 among Medicare recipients in outpatient clinics. The report stated that these are likely to be conservative estimates. In 2000 alone, the extra medical costs incurred by preventable drug-related injuries approximated \$887 million—and the study looked only at injuries sustained by Medicare recipients, a subset of clinic visitors. None of these figures take into account lost wages and productivity or other costs (Makary & Daniel, 2016)

According to a 2002 Agency for Healthcare Research and Quality report, about 7,000 people were estimated to die each year from medication errors – about 16 percent more deaths than the number attributable to work-related injuries (6,000 deaths) Medical errors affect one in 10 patients worldwide. One extrapolation suggests that 180,000 people die each year partly



as a result of iatrogenic injury. One in five Americans (22%) report that they or a family member have experienced medical error (Clapper & Ching, 2020).

Impacts on Patients and Their Family /Relatives / Loved ones

The range of consequences from medication error effects runs from no notable effects to death. In some cases, it can cause a new condition, either temporary or permanent, such as itching, rashes, or skin disfigurement. Although uncommon, medication errors can result in severe patient injury or death. The loss of a loved one is devastating. The knowledge that their death could have been prevented makes it even harder for the deceased's friends and family to come to terms with.

Impacts on Healthcare Providers

Doctors or nurses who inadvertently give the wrong medication to patients, or experience a near-miss, could suffer from shame, guilt, and self-doubt. This is referred to as the second victim, and the effect of this syndrome can be life-threatening: a senior nurse committed suicide after she overdosed a fragile baby with 10 times more calcium chloride. This embarrassment holds healthcare professionals from admitting their mistakes. A study conducted by Robertson and Long (2018) indicated that only 3% of healthcare professionals informed their patients about medication error. This prevents any possible personal reconciliation and closure on their error. It also prevents review and change of the system that allowed the error to happen in the first place. The patients or patients' family members may also pursue a personal injury lawsuit against the healthcare professional for negligence. This can affect the healthcare professional's career advancement and probability to revoke his/her license. Litigation can impose additional emotional toll on the healthcare professionals in addition to the stress from medication error.

Impacts on Hospitals

Patients or patients' family members could also file a personal injury lawsuit not just on the healthcare provider, but the healthcare institution where the healthcare provider is employed. Legally, hospitals could face huge legal counsel and possible settlement costs. Hospitals may also need to bear the loss of productivity from the staff involved in the error, and the increased cost of unplanned prolonged hospitalisation and treatment of the patients. Additionally, it could be time-consuming to deal with the errors, investigation, litigation, and settlement. The hospital's management team may need to spend time and money to investigate and modify policies to minimize future errors. Cumulative medication errors could also affect the hospital's reputation and re-accreditation (West et al, 2006).

Prevention and Reduction of Medical Errors

There are various ways to prevent medical errors. Habit of denial of medical errors can be avoided to reduce future errors. Accurate and complete record of treatment is necessary for the welfare of the patients (Bates, 1999). Effective team works can reduce errors. Errors in healthcare may cause adverse drug effects. Knowledge management (KM) helps to reduce medical errors of the practitioners by providing a decision support (Alexander, et al, 2021). Various studies reveal that KM is capable to reduce the medication case report errors as high as 55%. Many patient safety-related classifications were developed all over the world (WHO, 2009). To reduce medical errors, identification and classification of errors must be stated clearly. But, it is a very complicated process, which may be simplified by implementing an



effective classification system (Makary & Daniel, 2016). At present International Classification for Patient Safety (ICPS) tries to develop a classification system. It collects patient safety information from different sources to simplify aggregation, analysis and learning across fields, boundaries, and times (WHO, 2009). Many researchers believe that medical expert systems have great potential to improve healthcare by reducing medical errors. For the reduction of medication errors policies are needed to (Clapper & Ching, 2020):

- i. develop staffing levels, skill-mix, stress, and workload,
- ii. nurses, doctors, pharmacists, and families of patients need close communication
- iii. provide appropriate policies and guidelines as well as access to supportive technology and ongoing educational support
- iv. engage ward-based clinical pharmacists,
- v. computerize the reports of doctors entry period with clinical decisions
- vi. preparation and administration of medications,
- vii. information technology (IT) can be used to reduce errors,

Computerized physician order entry (CPOE) can reduce errors by 55% to 86% (Daniel & Makary, 2016). Implementation of CPOE has been slowed due to both financial cost and administrative structure (Hayward & Hofer, 2018). About 10% of the US hospitals have made CPOE completely and about 7% have made partially available to physicians (Frellick, 2016).

According to (Robertson & Long, 2018) some policy to reduce medical errors are as follows

- i. building public awareness of medical errors
- ii. continually involving the patient and family in the process of diagnosis and treatment,
- iii. building purchasers' awareness of the problem,
- iv. computerizing physician ordering entry systems combined with clinical decision support systems
- v. using clinical pharmacists in the inpatient setting,
- vi. taking a second opinion from an experienced specialist to confirm a diagnosis and appropriate treatment options,
- vii. introducing different colored syringes for IV and oral medications
- viii. checking of medication orders by two nurses before dispensing medication,
- ix. giving best guide to the healthcare providers to improve patient safety,
- x. using decision-support systems and information technologies
- xi. using standardized procedures, data integration, and checklists
- xii. human factors research
- xiii. a 'no-blame' culture at the workplace

The National Coordinating Council on Medication Error Reporting and Prevention (NCCMERP) makes the following recommendations to reduce medication errors associated with at-risk behaviors:

- i. Eliminate organizational tolerance of risk.
- ii. Increase awareness of at-risk behaviors.
- iii. Determine system-based reasons for risk-taking behavior.
- iv. Eliminate system-wide incentives for at-risk behaviors.
- v. Motivate through feedback and rewards.



Conclusion

Getting proper medical care is necessary for patients' health and safety. While none of the patients want to believe that medical errors will happen to them, based on the frequency of these issues, it's highly probable that a patient will experience at least one of the errors outlined here during the patient's lifetime. It is important for the patient to have adequate knowledge of health issues, and the patients should not be afraid to push back if something does not seem right. That persistence might just save the patient's life.

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