

**NAVIGATING THE COMPLEXITIES OF MEDICAL ERROR AND ITS
ETHICAL IMPLICATIONS**

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ABSTRACT

The discourse surrounding medical error and its ethical implications has become a pivotal focus within healthcare. Thus, this thesis aims to delve into the multifaceted aspects of and influences on medical error and its disclosure, with each chapter progressively shedding light on their complexities and ethical considerations.

The overarching argument posits that despite society's general intolerance for errors and a recognized aim for perfection, error remains an unavoidable and inevitable aspect of the practice of medicine and medical training. There exists an inherent fallibility in healthcare juxtaposed against the gravity of the profession and its consequent medical and legal ramifications when something goes awry.

The following ten chapters collectively highlight the intricacies of error management in healthcare through discussions on societal expectations, medical training, error analysis, accountability, systemic influences, patient-provider relationships, legal implications, and bioethical tenets. Ultimately, advocating for a cultural shift towards greater transparency, collective accountability, systemic quality improvement, and support for healthcare professionals to address errors effectively while upholding patient safety and trust. This thesis also recognizes the ethical imperative of error disclosure and the importance of fostering a balanced approach that acknowledges both the inevitability of errors in healthcare and the significant physical, emotional, and financial burdens caused by medical errors.

TABLE OF CONTENTS

	Page
ABSTRACT.....	ii
CHAPTER	
1. INTRODUCTION: NATIONAL LANDSCAPE OF MEDICAL ERRORS	1
2. SOCIETY’S INTOLERANCE FOR ERROR AND AIM FOR PERFECTION	6
3. THE CULTURE OF MEDICAL TRAINING.....	11
4. MORBIDITY AND MORTALITY CONFERENCES	17
5. WHAT MAKES A “BAD” DOCTOR?	21
6. SYSTEMATIC ERROR AND SOCIAL DETERMINANTS OF HEALTH.....	25
7. THE PATIENT-PROVIDER RELATIONSHIP	29
8. MEDICAL ERROR DISCLOSURE	33
9. THE FINAL CONSEQUENCES	38
10. CASE SCENARIOS FOR THOUGHT	49
11. INTERSECTION OF BIOETHICS AND ERROR.....	53
12. CONCLUDING REMARKS.....	55
BIBLIOGRAPHY.....	58

CHAPTER 1

INTRODUCTION: NATIONAL LANDSCAPE OF MEDICAL ERRORS

All humans are fallible, and as such, errors are inevitable. This is true even in and especially for the practice of medicine. The inherent uncertainty of the field and the remarkable depth of what is genuinely unknown undoubtedly lend to this. Moreover, there is fear, both fear and vulnerability on behalf of our patients, and fear and hope as providers. And as such, despite our Hippocratic oath to "First, do no harm," mistakes can be and are made.

As we begin to explore the ethical considerations surrounding medical error, it is crucial to define what is considered an error, conceptualize what makes an error reportable, and what distinguishes an error from a criminal act. As defined by the Institute of Medicine, a medical error is the failure of a planned action to be completed as intended (i.e., error of execution) or the use of a wrong plan to achieve an aim (i.e., error of planning), or the deviation from the process of care that may or may not cause harm or unintended consequence to the patient. Standardized nomenclature regarding medical error also includes errors of omission as a result of actions not taken (i.e., failing to secure a patient on a stretcher prior to transfer) and errors of commission as a result of the wrong action being taken (i.e., mislabeling a laboratory specimen) [1].

Medical errors are a significant public health issue and pose a substantial threat to overall patient safety. According to the World Health Organization fact sheet on patient safety published in 2019, the occurrence of adverse events due to unsafe care is likely one of the ten leading causes of death and disability in the world [29]. Annually in the United States, an estimated 400,000 deaths are attributable to medical errors and serious harm

due to preventable medical error may be upwards of twenty times more prevalent than mortality. These errors are often related to diagnosis, prescription, and the use of medicines; often associated with a significant financial burden as well [30]. The FDA receives more than 100,000 reports of medication errors and 400,000 drug-related injuries every year. Despite these astronomical figures, the frequency of disclosure of medical errors is only one per four harmful events [9]. Globally, up to 40% of patients are harmed in primary healthcare settings, with up to 80% of the errors being preventable.

Having discussed the impact and prevalence of medical errors, three salient points merit consideration. First, the definition of medical error, as provided above, encompasses actions that may not directly harm or lead to unintended consequences for patients. It also does not account for the possible negative impact on the provider-patient relationship that may result from disclosing an error or the potential for misinterpretation, as medical misinformation and varying health literacy levels are incredibly prevalent in today's environment. These dynamics, additionally influenced by the nature of the error, extent of harm experienced, and method of disclosure, all contribute to a complex web of communication challenges that must be navigated with care.

Second, there exists a prevalent misconception that all medical errors are entirely preventable or solely attributable to one individual, supported by the public and legislative intolerance for medical errors in general. This does not account for systematic factors (i.e., increased workload, staff fatigue, electronic medical record technology) that contribute to medical errors despite a providers' best efforts or lack of current technology or resources needed to prevent an error. Thus, it is imperative to contextualize and appreciate the scale of an error. Placing undue burden on individuals when systemic

failures are at play is unjust and prompts questions regarding the allocation of blame and responsibility. Thus, the discussion on error reporting must delve into the nuances of accountability, transparency, and truthfulness, as well as individual or institutional reputation, patient safety, legislation, and insurance frameworks. These multifaceted aspects underscore the complexity of addressing medical errors comprehensively.

Third, an often-overlooked aspect of healthcare administration is medical education, which plays a significant role in shaping providers and trainees and provider mental health, which may suffer as a consequence of errors or subsequent punitive actions. Many providers not only serve as physicians but also as educators, with on-the-job training being a cornerstone of the educational process. This training involves extensive supervision, often in a hierarchical structure, that also allows for earned and graduated autonomy and is known to be rigorous and overwhelming. It remains a crucial element that must be addressed when discussing medical errors, especially as the practice of medicine relies on its ingrained hierarchy and the teaching of the next generation.

Having reviewed medical errors and their nuances, what makes a medical error reportable, and why is reporting necessary? The criteria can vary depending on the healthcare organization, regulatory requirements, and local laws. Reporting errors not only upholds the ethical concepts of beneficence and non-maleficence but also helps mitigate future errors and decrease the frequency of similar errors if the root causes are managed/modified effectively [1]. The disclosure and reporting of errors are serious and complex actions that include multiple players (provider, patient, hospital, insurance, lawyers) that often requires a culture of open communication and non-punitiveness.

The Joint Commission, which accredits US healthcare organizations and programs, requires member healthcare agencies to report sentinel events defined as "any unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof," which signals the need for investigation and response. However, this does not imply that there is consistent regulation or enforcement of reporting behavior, which can occur at a network, hospital, team, or individual level, each with varying legal and administrative repercussions or involvement.

Moreover, an important distinction to consider is when a medical error transitions into criminal conduct; this threshold can vary significantly. This determination entails navigating multipart legal considerations and precedents, jurisdictional boundaries, and the specific circumstances surrounding an error. Instances where medical errors may be deemed criminal often include cases of gross negligence characterized by a reckless or willful disregard for established medical practices, as well as instances of intentional misconduct or harm, fraudulent or deceptive behavior indicating awareness of wrongdoing, or definite violations of laws and regulations. For the purpose of this thesis, criminal acts will not be encompassed within the definition of medical errors.

Thus, the discussion surrounding medical error and its ethical implications emerges as a critical focal point within healthcare discourse. My argument is that in the face of a general intolerance for errors and a recognized aim for perfection, error remains an unavoidable and inevitable part of the practice of medicine and medical training. By delving into this topic, I aim to uphold the paramount importance of patient safety and prevention of future errors through the implementation of necessary modifications and changes in healthcare practices.

I have divided this thesis into ten chapters. The first three chapters examine the fallibility and uncertainty prevalent in medicine and medical training. Next, I explore the connotations of “good” and “bad” doctors and what factors may influence our perceptions and judgments before delving into the standard disclosure policies and legal management of error. The final two chapters summarize the ethical implications of medical error utilizing case scenarios and more concrete bioethical vocabulary.

CHAPTER 2

SOCIETY'S INTOLERANCE FOR ERROR AND AIM FOR PERFECTION

Becoming a physician in the United States today follows a well-trodden path. Traditionally, students graduate from high school and embark on a four-year undergraduate degree, often in a scientific or mathematics field. This period is marked by numerous checkboxes to be ticked off, each crucial for bolstering one's candidacy for medical school. These checkboxes encompass a wide array of activities, from research and honors classes to clinical experience, work experience, leadership roles, volunteering, teaching positions, and a diverse host of extracurricular pursuits. With every progression, there is an added pressure, as any setback makes the journey towards realizing one's dream of becoming a physician even more challenging, especially bearing in mind the time and energy invested.

Then comes the monumental task of tackling the Medical College Admission Test (MCAT), a standardized exam scored out of 528 points. Once satisfied with the score, months are spent meticulously preparing the medical school application in the hopes of securing coveted interview slots and accepting a position to spend the next four years training. However, the rigors of medical school soon become starkly apparent. It is akin to trying to drink from a fire hose, studying an exhaustive curriculum with subjects ranging from anatomy and histology to microbiology and biochemistry. Four years' worth of undergraduate study is often compressed into a mere two weeks of this intensive learning before delving into the intricacies of physiology, pathophysiology, and pathology across all bodily systems. Amidst the academic rigors, students also find

themselves immersed in research, extracurricular commitments, national standardized exams, contributing to the perpetual struggle to stay afloat.

Typically, medical school entails two years of classroom instruction followed by two years of clinical rotations, offering invaluable exposure to various specialties and the opportunity to refine clinical skills. It is during this phase that students often throw their first suture, conduct patient rounds, perform cardiopulmonary resuscitation, witness the realities of terminal illness, and strive to meet the clinical expectations placed upon them.

Quickly, three years have pass, and students are faced with the daunting task of applying to residency programs that can range from three to seven years of additional training. The application process is complex, involving interviews and a ranking system whereby both parties express preferences. A computer-run algorithm maximizes matches between students and their preferred programs, and the final revelation of this process arrives with the opening of an envelope. The journey is still far from over as for those inclined towards further specialization, trending to something of a necessity, fellowship applications beckon. Alternatively, some may transition into junior attending roles, embarking on the trajectory toward full-fledged attending status.

I detail this complex, challenging, and lengthy medical training to illustrate the effort, time, and cost that is invested into medical training to become a physician who can help interpret, inform, and guide the public through fundamental and vulnerable issues, as those concerning our health and wellness often are. The years of immense effort and time, however, culminate in proving how imperfect a science, medicine, and the work of physicians can be. At every humbling step, there is more to learn and more to understand.

In fact, it is often the most ignorant of students who believe they know and understand all.

Most of the general public will interact with the healthcare system at least several times in their life, either with personal or family medical issues. The public is also exposed to medicine and healthcare in many other ways through social media, television, entertainment, politics, and databases like WebMD. Each provides an array of different perspectives, some romanticizing medicine, others demonizing it. Some bring awareness to necessary issues and educate others; others capitalize on misinformation and mistakes. We are privy to entertainment involving miracle-working genius doctors, bad doctors, residents-in-training, aging doctors, and doctors embroiled in romantic entanglements, substance use, and their own personal matters. We witness medical successes and failures of many magnitudes, some mirroring reality, others exploiting the drama and incredulity that brings viewership. We consume information from uncredentialed sources citing detoxing and anti-parasitic agents that big pharma and medical professionals are withholding. We experience the litigious nature of our society with advertisements of compensation for medical malpractice and advocacy for accountability.

What becomes apparent, however, is society's aim to understand, and perhaps glorify, medicine and that despite its pervasiveness in modern life, misperceptions of medicine as a straightforward, algorithmic, and optimized to perfection practice, flourish.

Acknowledging the fallacy of assuming omniscience in medicine is Dr. Atul Gawande, an American surgeon, writer, and public health researcher who observes in his book collection of essays, *Complications: A Surgeon's Notes on an Imperfect Science*, "Medicine is, I have found, a strange and in many ways disturbing business. The stakes

are high, the liberties taken tremendous [...] we look for medicine to be an orderly field of knowledge and procedure. But it is not. It is an imperfect science, an enterprise of constantly changing knowledge, uncertain information, fallible individuals, and, at the same time, lives are on the line. There is science in what we do, yes, but also habit, intuition, and sometimes plain old guessing. The gap between what we know and what we aim for persists. And this gap complicates everything we do" [2].

Following this observation, from the perspective of a graduating medical student, the more knowledge I gain, the more I realize the limits of our abilities and technology and what remains unknown. I learn from physicians with a multitude of experiences who not only exhibit confidence grounded in years of professional expertise but also doubts and missteps. I have learned to recognize my own uncertainties in addition to my growth, finding it startling how fundamentally human my training and future profession is.

There is an intricate balance between the reality of medicine's fallibility and societal expectations of perfection, one that is logical, as health and wellness are critical entities. Even the simplest of decisions or operations carry risks and outcomes that cannot be taken for granted, challenging society's intolerance for errors and anything other than flawless performance. This tension is further exacerbated by the ever-evolving landscape of healthcare (i.e., rising healthcare costs, insurance interference, recent pandemic, misinformation epidemic) and leads to a growing sense of distrust and frustration. While medical errors are inexcusable, it is crucial to recognize the impracticality of expecting perfection, especially when facing unavoidable or inevitable medical errors. Instead, healthcare professionals must never cease to aim for perfection, fulfilling their oath of beneficence and non-maleficence.

Ultimately, this chapter serves to underscore society's intolerance for error within the medical profession while advocating for a more realistic understanding of the challenges inherent in medical practice. It calls for a shift in perspective, recognizing the inherent humanity within medicine and the ongoing pursuit of excellence in the face of uncertainty.

CHAPTER 3

THE CULTURE OF MEDICAL TRAINING

At the heart of medical training and care lies a paradoxical desire for expertise and innovation. Experience is essential for proficiency, yet without practice, how can one gain experience? Every day presents an opportunity to train the next generation while simultaneously gaining more knowledge and skills. There is always a first time and a learning curve for every skill or clinical scenario and the pace of medical innovation is grand, with new technology and innovations emerging, providing new learning curves at any point in a physician's career. To become experienced and master the evolving standards of care, one must first acknowledge their inexperience; there is no choice but to give new things a try and then practice.

Physicians are sworn to uphold the principle of the Hippocratic oath to "do no harm," yet contradictory to this is to permit practice on patients, as crude as this may sound. Healthcare professionals aim to provide the best and most beneficial care to every patient, so how do we justify the involvement of resident physicians, students, or novices in patient care when more experienced hands are available? As Dr. Atul Gawande raises, "Given the stakes, who in their right mind would agree to be practiced upon?" [2]. Moreover, we must consider to whom this choice is actually offered and how it intersects with the principles of informed consent and patients' autonomy and agency in their healthcare decisions.

In his book, *Complications*, Dr. Gawande recounts an experience as a resident during which he planned to remove a screw from a patient's foot. He expected skepticism from his patient, as if his inexperience was tangible and transparent, prepared for the

patient to say something like "You?" Instead, he received an "OK, Doctor," the trust and acceptance clearly placed on him and his title [2]. As trainees, we grapple with our own doubts -- can we do this? Should we do this? These hesitations gradually transition – I have to do this. I am empowered to do this. I hope I can do this. Recalling my first experiences with providing medical care, such as performing CPR for the first time or placing my first suture in the operating room, I remembered my training on the mannequin and fake skin, fully aware of the profound shift I was making to practicing on actual patients. Nobody asked the patient if it was alright, though informed consent covers these procedures and actions in teaching hospitals. Mine were simple undertakings, but as tasks become more challenging, the stakes become higher, and greater risks are taken. Eventually, there comes a point where a neurosurgeon or vascular surgeon must undertake critical procedures like a complex craniotomy or abdominal aortic aneurysm rupture independently for the first time. The burden on them to draw upon their past training and practice to ensure success is immense.

I am all too familiar with the incongruity of practice to gain experience being provided as patient care, knowing that the acquisition of confidence and skills often occurs in a non-linear fashion—haltingly and lacking the smooth upward trajectory of proficiency that one might expect. But, like mastering any other skill, building a repertoire in medicine necessitates practice. The crucial difference, however, lies in the fact that physicians are dealing with people – their health, well-being, and lives are the subject of deliberate practice. There is a "moral burden," as Dr. Atul Gawande eloquently expresses, in practicing on people with unsteady hands at first, ardently believing in the eventual benefit.

As I ascend the medical trainee hierarchy and dedicate myself to the field, finding myself privy to the inside decision-making and doubts, I find myself grappling with several fundamental questions: would I consent to my own family's treatment by trainees in practice? Would I seek the expertise of the most experienced hands and minds? Would I permit this case to be treated as a typical teaching case? I myself have benefited from practicing on others' family members and acknowledge the inherent necessity of gaining experience through practice. The resulting cognitive dissonance is resounding. However, I recognize that teaching hospitals are crucial institutions in the field of medicine and vital to the drive for progress and innovation. Within these institutions, it is understood that trainees will participate in patient care to varying degrees; however, the extent of involvement may not always be clear or transparent to patients. Reflecting on my own journey into medical school, through which I had a distinct vantage point as a participant without overwhelming clinical responsibility, I realize that prior to working within the medical team, I lacked a comprehensive understanding of the roles held by each member of the team and how their positions within the hierarchical structure influenced their responsibilities. For example, in an academic hospital, residents provide most of the moment-to-moment doctoring, with an attending physician overseeing decisions.

This act of practicing, which I describe ever so simply, is only undertaken with careful consideration and instruction by national regulatory bodies. Rumors suggest that July 1st, the day incoming residents begin their training, is the most unsafe period in hospitals, logically grounded in the belief that care from an unsteady novice will result in poorer outcomes and greater risk than care from an experienced provider. However, studies consistently indicate that teaching hospitals have better patient outcomes than

non-teaching hospitals [15]. "Residents may be amateurs, but having them around checking on patients, asking questions, and keeping faculty on their toes seems to help" [2]. Residents will not advance from performing their first suture to conducting operations within a day, let alone a year; there is an understanding from both the teacher and student on the boundaries and limitations of practice and the realization that the final outcome may not be as secure than if the experienced teacher had handled the task alone.

The old adage of "see one, do one, teach one" simplifies the learning process, but in reality, it is far from a one-and-done scenario. Mastery comes through repeated practice, and even then, proficiency does not guarantee certainty in every situation. As discussed in the first chapter, uncertainty is inherent in medicine, even in seemingly straightforward cases managed by a single provider. Handling more complex cases amplifies this uncertainty, as can collaborating with a larger team and balancing different opinions and perspectives.

The potential for harm or errors secondary to on-the-job training is mitigated through various channels of robust supervision and graduation allocation of responsibility and autonomy. This framework fosters shared responsibility and accountability within the healthcare team, minimizing errors despite the inevitability of individuals experiencing first-time situations. Thus making the process of learning more comfortable.

As Dr. Atul Gawande aptly states and summarizes, "This is the uncomfortable truth about teaching. By traditional ethics and public insistence (not to mention court rulings), a patient's right to the best care possible must trump the objective of training novices. We want perfection without practice. Yet, everyone is harmed if no one is

trained for the future. So learning is hidden, behind drapes and anesthesia and the elisions of language."

Some strategies can be employed to enhance the effectiveness of medical training, perhaps lessening the crudeness of the word 'practice.' The Harvard Learning Curve Study provided encouraging insights on optimizing the learning curve and training process through deliberate training methods and systematic progress tracking [2]. Additionally, simulation is a widely utilized tool that allows trainees to practice and refine their skills in a controlled environment. Just recently, I had the opportunity to learn how to insert a chest tube into a mannequin and to practice surgical skills using simulated robotic surgery. Combined with my previous opportunities to observe such techniques, these experiences provided valuable hands-on practice and familiarized me with the procedures before I will encounter them in real-world clinical settings. In fact, residency training programs typically invest hundreds of thousands to several million dollars into new, updated simulation centers and programs.

The crux of my argument is that medical training itself contributes to the inevitability of errors. However, this process is indispensable for gaining experience and trialing innovation for the ultimate benefit of our patients and regulated through supervision and gradual autonomy. In essence, error is both unavoidable and essential in the progression of medicine and the creation of the next generation of skilled physicians. This chapter serves to provide insight on this perspective in addition to highlighting the ethical dilemma of allowing trainees to practice on patients while maintaining the Hippocratic Oath and tenets of beneficence and non-maleficence.

What is interesting and to be further discussed in the fourth chapter of this thesis is the navigation of the entrenched hierarchy and power dynamics within the medical profession and its implications on reporting errors and the culture of transparency and accountability within healthcare.

CHAPTER 4

MORBIDITY AND MORTALITY CONFERENCES

Morbidity and Mortality Conference (M&M or MMC) is a staple of medical institutions nationwide with a long history steeped in medical education, error analysis, and quality improvement [3,4]. This conference provides an opportunity for healthcare team members, regardless of their traditional hierarchical position, to glean insights from past cases to improve future patient safety and care in an open and blame-free atmosphere conducive to learning. Typically held in an auditorium, M&M conferences occur on a weekly basis, drawing attendance from students, residents, fellows, and attending physicians. Cases resulting in significant morbidity or mortality are selected in advance, and a formal presentation is prepared, often delivered by a junior member of the healthcare team. The presentation reviews the trajectory of the case, from admission to the final outcome, and retrospectively analyzes critical decision-making, missteps, flawed judgments, complications, and frank errors. Key learning points aimed at improving future patient outcomes are also discussed.

Although not standardized across all institutions, M&M conferences are focused on learning and knowledge acquisition rather than blame assignment or culpability. While some conferences, unfortunately, devolve into finger-pointing and accusations, others are skillfully and successfully conducted. These provide the audience valuable insights into the influences at play in each case and guidance for future similar situations. M&M conferences foster a sense of personal responsibility for outcomes and highlight healthcare professionals of fierce ethical integrity and fortitude, particularly those who acknowledge the inescapable truth that error and complications will occur in healthcare

and, though inevitable, are very much so regretful. Those who stand to gain the most from M&M conferences are those who embrace the ongoing pursuit of personal growth and believe staying sufficiently informed and vigilant about past mistakes helps prevent future errors and issues.

An important distinction to be made in M&M conferences and the medical field as a whole is the difference between complication and error. A complication refers to an unintended result or consequence of a disease, disorder, or medical treatment – it can occur despite appropriate and proper medical care and can range from minor inconveniences to severe adverse outcomes. Various factors can influence the complication rate, including the patient's baseline health, the nature of the treatment or procedure, or unforeseen events during medical care. Medical errors, on the other hand, refer to a mistake, oversight, or failure in the delivery of healthcare services that results in harm to the patient – it is a deviation from the standard of care and may have been preventable [5,6].

In medicine, every decision involves a careful consideration of the risk-benefit ratio. As a future surgical resident, I am acutely aware of this principle. Surgery may offer a curative solution in some instances, but some factors, such as a patient's nutritional status, ability to be extubated post-surgery, and the likelihood of successful healing, may discourage a surgeon from operating. The factors that influence this risk-benefit ratio vary from one case to another and from one individual to another; they can include factors such as the physician's abilities, skills, expertise level, and access to resources, as well as the patients themselves. This is where informed consent and patient autonomy play a significant role, as patients must be informed about the potential risks

and prescribed benefits associated with a procedure and make decisions based on their own values and preferences. This concept also plays a role in medical malpractice, which will be explored further in a later chapter.

Integrating these ethical and legal concepts with the concept of M&M conferences, there are two key points worth highlighting. First, M&Ms are scheduled conferences held regularly, regardless of specific cases or outcomes. This recurrent scheduling recognizes the inevitability of complications and errors in healthcare despite our best efforts to adhere to the principle of "do no harm." It is also indicative of the culture of continuous learning and improvement in patient care that contributes to "do no harm."

Second, M&M conferences can occur because of legal protections that shield M&M proceedings from legal discovery. These laws known as peer review protection or medical peer review privilege laws can vary by state. This legal safeguard sophisticatedly acknowledges the complexity of error in healthcare and that punitive measures alone do not act as an effective deterrent. Despite the avoidance of legal punishment, the M&Ms provide a space for open discussion and error analysis and as such promotes responsibility-taking and reinforces the expectation that error is intolerable and must be appropriately dealt with and prevented from happening again.

I end this chapter with a quote by Dr. Atul Gawande, "doctors are seldom outraged when the press reports yet another medical horror story. They usually have a different reaction: that could be me" [2]. M&Ms serve as a humbling experience for healthcare providers. Participation in these conferences encompasses all members of the

healthcare team, from students to attending physicians, fostering a sense of collective responsibility for patient care and awareness that errors can happen to anyone.

CHAPTER 5

WHAT MAKES A “BAD” DOCTOR?

We have established society's intolerance for error, and taking it a step further, it is evident that the public perceives medical errors fundamentally as an issue of "bad" doctors. Two main factors contribute to this perception. First, society has inundated us with horror stories: documentaries highlighting horrendous outcomes and terrible doctors of poor moral fiber and skill. Social media has also provided a platform for individuals to expose and discuss mistakes without corroboration or an opportunity to hear from both sides, creating media scandals with real, significant consequences and rampant disparagement. Second, mistakes in medicine are often, at first, unseen by patients and thus subject to miscommunication, misunderstandings, and consequent distrust in healthcare providers and the healthcare system as a whole. Therefore, it is also essential to manage the expectations of patients, especially with how easily accessible information is at everyone's fingertips and the invent of social media. What can be construed as a mistake to a patient may not be one in reality. For instance, studies observe that patients often gauge the success of a medical appointment based on whether they receive medication or imaging, regardless of medical necessity [16]. Not receiving either is not an error but rather a misstep in managing expectations or being clear in medical reasoning and decision-making.

Unfortunately, mistakes happen; they are not uncommon or anomalies and often not solely attributable to a subset of bad, dangerous doctors (although such individuals do exist.) If errors were primarily committed by "bad" doctors, we would see something much different than the uniform, bell-shaped distribution of malpractice cases [17]. In

reality, majority of physicians face at least one lawsuit during the course of their careers. This raises the question: how do we justify allowing these doctors who make mistakes to continue to practice medicine? Are they not to be labeled as incompetent, unethical, or negligent? Should they not be punished? However, the central truth is that all doctors make mistakes at some point, confirming the ubiquity of error, whether it may be misdiagnosis, misinterpretation of laboratory results, medication errors, communication errors, lapses in infection control, or loss of confidentiality.

We have discussed the inescapable reality that errors will occur as humans are fallible, the science of medicine so imperfect, and the incapability of our current technology. Doctors are only human, and they have their own troubles, too. While not all doctors with troubles are dangerous, like any profession, there are a few who do not meet expected standards and practice unchecked, with estimates suggesting that about three to five percent of practicing physicians are unfit to see patients [18]. We are often ill-equipped to address these situations, and they are often a consequence of hospital administration and trying to save institutional or personal reputations, as evidenced by the cases of serial killing by Nurse Charles Cullen or experimental, fatal surgeries by Dr. Paolo Macchiarini. Their negligence and criminal intent are egregious; however, this manner of purposeful error and criminality is beyond the scope of this thesis.

So, the salient question is how to prevent the "good," dedicated, diligent, and skilled physicians from committing mistakes or causing harm. When do things spiral out of control?

The key to this often lies in the awareness and implementation of a robust reporting system. Physicians are often not identified as dangerous until significant harm

has been inflicted, and contributing factors such as addiction or medical illnesses are frequently overlooked and left unevaluated. Burnout, extreme stress, and poor coping mechanisms are rampant in the healthcare field. Recommendations by physicians for adequate sleep, reduced caffeine intake, and a healthy diet are often juxtaposed with grueling 28-hour shifts, sustained on numerous caffeinated beverages and unhealthy hospital cafeteria food.

It is challenging to address and report problematic behavior in "good" doctors, especially since being a physician is often so tied to a person's identity, described as a calling rather than a simple profession. The physician community is also tightly knit; there is empathy for the mistakes we all commit and an understanding of the arduous, demanding journey it takes to become a physician. In this community, colleagues are seen as fellow human beings, ones that can struggle and suffer, rather than the omniscient, always capable, infallible hands that patients place their vulnerabilities and trust in. This camaraderie and deep understanding can make it challenging to report colleagues, particularly when the usual response is discipline or suspension rather than support and treatment.

Furthermore, navigating the entrenched hierarchy within the medical profession can be unnecessarily political and challenging, and there is often a need for more supervision and accountability across tiers. In fact, those generally in the best position to recognize dangerous or problematic behavior (or errors committed) – junior physicians, nurses, students, ancillary staff – are the least empowered to take action, especially if their careers can be impacted. Moreover, if they are interested in reporting, it can be difficult and uncomfortable to deem someone unfit to do their job without proper

investigation or evidence collection, which is not necessarily their responsibility. A similar issue is senior physicians who may need to retire due to age or an inability to meet modern standards of care. What do we do when everyone except the doctor themselves recognizes the problem?

Dr. Atul Gawande, in his book *Complications*, recounts an interview with a surgeon who, once exalted, gradually was becoming dangerous, yet it took years for action to be taken. When asked how this could happen, the surgeon's response was a faint and resigned "I don't know" [2].

What I want you to leave this chapter understanding is that doctors, like all humans, are fallible and capable of making regrettable, intolerable mistakes. Not all doctors who err are inherently bad; some find themselves entangled in a series of unfortunate decisions and circumstances or simply suspect to the inevitability of error in the medical field. Unfortunately, our current administrative policies and systems often lack the ability to identify problems early, provide support rather than punitive measures, and adequately assist physicians who are struggling. As a result, many physicians face challenges and burdens alone, not only doing a disservice to our physicians but also creating an environment where mistakes are more likely to occur.

CHAPTER 6

SYSTEMATIC ERROR AND SOCIAL DETERMINANTS OF HEALTH

Up until now, we have discussed the inevitability of errors in medicine, particularly human errors. However, this overlooks systematic error, a significant contributor to medical errors, which dramatically complicates the entire matter. Systematic errors occur due to flaws or inadequacies within the healthcare system itself. These can include inadequate or unstandardized protocols, poorly designed processes, technology, or techniques, inadequate electronic medical record (EMR) systems, resource scarcity, onerous workloads, chaotic or understaffed work environments, ingrained biases in healthcare, or ineffective communication channels. These errors are pervasive in nature and can impact multiple individuals or departments within a healthcare organization, leading to a cascade of mistakes that compromise patient safety.

Some systems also rely on human perfection, appropriately termed "latent errors," errors waiting to happen. Examples include writing out a prescription (before the invention of the EMR) or the unsuccessful usage of medical equipment crafted without a standardized design.

These errors are challenging to address because it becomes unclear who should bear responsibility when the system itself is at fault. When already operating within a team-based framework, it can be challenging to assign culpability to one individual (as it should be); this is further complicated by any additional contributing system failure. Another salient observation is that these mistakes can evolve, and a series of system failures together can conspire to produce disaster.

Addressing systematic issues, at least superficially, may appear easier than addressing human error, as we can design a quality improvement project or standardized protocols to remedy system failure. However, implementation is only easy with proper financing, administrative backing, and organizational support. Nevertheless, it is evident that significant improvements in reducing medical errors can be achieved by addressing systematic errors (even if only attending to the slightest of details) alongside cultivating individual skills and knowledge base. Of note, though not yet common practice nationwide, some institutions incorporate discussion of systematic errors in their M&M conferences, aiming to raise awareness for and push to rectify these systemic issues.

One prominent quality improvement project aimed at reducing medical errors with a resounding impact is the Institute for Healthcare Improvement's 100,000 Lives Campaign. Launched in 2004, the campaign focused on implementing evidence-based practices to improve patient safety and outcomes with the overarching goal of preventing 100,000 avoidable deaths in US hospitals. Some key interventions they employed that now are common practice include deploying rapid response teams to patients showing signs of clinical deterioration before an adverse event transpires, setting standardized protocols for inserting, maintaining, and removing central lines to reduce the risk of infection, and utilizing care guidelines to reduce the risk of ventilator-associated pneumonia [19].

A rather inexcusable systematic error stems from the biases of providers, often concerning the social determinants of health. These determinants, including socioeconomic status, education, employment, physical environment, access to healthcare, social support networks, and cultural influences, significantly contribute to

health inequity in the United States. A prime example of a bias that has been ingrained into our healthcare system is the discrepancy in glomerular filtration rate (GFR) calculations for Black individuals. GFR is a measure of kidney function; however, traditional equations used to estimate GFR utilize an incorrect, non-evidence-based race coefficient and therefore have been underdiagnosing and undertreating chronic kidney disease only in Black populations [20].

Similarly, the concept of "VIP" patients and the distinction between populations served by private and public hospitals highlight biases present in healthcare. It is as if an implicit status of importance is ascribed to patients, indicating populations in which errors might be more tolerable versus those whose health is viewed as more valuable. Often, the populations served the most by residents, for whom they have the most independent responsibility for and least supervision, are those who are impoverished and disenfranchised. It is assumed that these patients do not have the time, funds, or perhaps resources to advocate for themselves and that secondary to their socioeconomic status and other social determinants of health are not worthy of the experienced care from attendings. Instead, residents, who have less experience and expertise and often practice in urban public hospitals, are deemed competent enough for these patients. Dr. Atul Gawande writes, "Residents have few opportunities nowadays to operate independently, without the attending docs scrubbed in, but when we do—as we must before graduating and going out to operate on our own—it is generally on these, the humblest of patients," referring to impoverished, uninsured, inebriated, and disorientated patients. This is in contrast to the management of "VIP" patients, such as those with connections to hospital administration, wealthy individuals (deemed as those with resources to advocate strongly

for their health), or family members of healthcare providers. With these “VIP” patients, resident involvement is often strictly observed and perhaps even curtailed. It is assumed that those with more experience and expertise should care for these patients of “great importance.” Stratifying patients based on social determinants of health is also apparent in the differences between populations served by private versus public hospitals, which often have differential access to resources, involvement of experienced providers, and quality of care. Ultimately, it is evident that healthcare is not solely a medical undertaking, but one with many social influences.

This chapter aims to underscore the pervasive nature of systematic errors in healthcare, arising from flaws within the system and biases, whether institutional or individual in nature. These errors blur the lines of individual responsibility and are challenging to address, thus demanding comprehensive systemic reforms. By incorporating discussions on systematic errors alongside individual skill development and quality improvement projects, significant strides can be made in reducing medical errors and advancing patient safety, acknowledging the social determinants of health that significantly shape healthcare outcomes and disparities.

CHAPTER 7

THE PATIENT-PROVIDER RELATIONSHIP

Being ill can be an intimidating and deeply vulnerable experience and the remarkable progress of medical advancement over the past few decades has made healthcare seem more unapproachable and difficult to grasp. This underscores the importance of physicians fostering and maintaining trusting relationships with their patients. However, achieving this is not always straightforward, particularly in light of historical cases of exploitation such as the Tuskegee syphilis study or pervasive biases and discrimination like those contributing to the disparities in black maternal mortality rates.

The evolution of healthcare from a model where private doctors make house calls to one dominated by hospitals marks a significant shift in trust dynamics. In the past, medical care often consisted of a family doctor who had treated multiple generations, fostering a deep sense of familiarity and trust within the community. However, as healthcare becomes more industrialized, patients find themselves primarily concerned about locating an available doctor who is also covered by their insurance. This transition is also accompanied by a shift in the underlying philosophy of medical practice—from paternalism to autonomy. In the paternalistic model, doctors held considerable authority and made decisions on behalf of their patients. Conversely, the autonomy model emphasizes patient involvement in decision-making, with doctors providing information and recommendations about treatment options while respecting the patient's right to make choices based on their values and preferences. This shift reflects a broader cultural

movement towards empowering patients to participate actively in their own healthcare decisions.

Moreover, the patient-provider relationship has been recently influenced by several factors, including consumerization, artificial intelligence (AI), and the advent of electronic medical records (EMR).

Consumerization reflects the shifting of patients from passive recipients of care to active consumers or clients with specific expectations (often of idealized perfection) and demands. Patients increasingly view healthcare as a service to be purchased, with their satisfaction measured through surveys and online rankings. This consumer mindset has led to a focus on meeting patient expectations and demands (this is different from patient-led medical advocacy), sometimes at the expense of medical necessity. Additionally, the involvement of insurance companies in healthcare decisions has sown distrust and frustration, with patients feeling that providers order unnecessary procedures or medications for financial gain and providers discouraged by the need to justify their prescribed patients' care to insurance companies. Sometimes, it feels as though we are minutes away from implementing a "tipping" culture in medicine and moving towards a more combative and skeptical patient-provider relationship.

The implications of AI for the patient-provider relationship are also complex. AI-driven decision-making may be preferred by some patients for its objectivity, efficiency, and accuracy (low error rate); however, this raises questions about the role of intuition and empathy in medical care. Suppose statistical approaches and automation can outperform human judgement, no longer making individualized, intuitive care the gold

standard. How do we justify human involvement in medical care with its flaws and increased error rate when AI can complete the job better?

Furthermore, the widespread adoption of EMRs, as well as the Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health Act (HITECH Act), have expanded upon patients' rights to access their electronic health information, including medical notes and lab results. While this promotes transparency and patient autonomy, it also introduces challenges. Patients often experience undue anxiety or misunderstandings when viewing their medical information without context or guidance from their healthcare providers. Moreover, the language used in medical documentation, such as clinical terminology or subjective descriptors, can influence the patient's perception of their condition and their provider's approach to their care. This is pertinent to all fields of medicine, but particularly in psychiatric cases, where trust is arguably of the utmost importance.

Now, as Dr. Atul Gawande aptly wrote, “On the simplest level, nothing comes between patient and doctor like a mistake. And while errors will always dog us—even machines are not perfect—trust can only increase when mistakes are reduced” [2].

This raises the critical question: how does error affect patient-provider relationships, and what nuances are involved? When a doctor is transparent about their mistakes, does it foster greater trust with their patients, or does it erode confidence in their abilities? On one hand, the act of disclosure implies honesty and accountability, but on the other hand, it exposes a history of fallibility. Can patients still entrust their health to a physician once they become aware of such errors?

Additionally, the manner and timing of error disclosure are pivotal factors. Patients may have preferences regarding when and how they receive this information and for what types of errors.

Speaking of medical errors in healthcare settings can be a taboo subject; however, there are instances where doctors have taken the initiative to discuss transparency in healthcare and error disclosure. One such individual is Dr. Leana Wen, who delivered a TED Talk in 2014 on the subject of "What your doctor won't disclose," which stirred heavy controversy [7], and Dr. Brian Goldman in 2012, "Doctors make mistakes. Can we talk about that?" [8]. Dr. Wen speaks of an instance where family members requested to attend bedside rounds to discuss their son's condition and plan, only to be rejected by the head doctor because "What if they see mistakes and sue us?" Dr. Goldman speaks of "the unhealthy shame that exists in our culture of medicine -- where I felt alone, isolated... the one that makes you so sick inside. It's the one that says, not that what you did was bad, but that you are bad" and "the system that we have. It's a complete denial of mistakes. It's a system in which there are two kinds of physicians --those who make mistakes and those who don't." These quotes add to this chapter in highlighting the ongoing struggle surrounding transparency in healthcare and its consequences, specifically reputation-wise, but also share the emotions of shame, guilt, and distrust that can permeate the already nuanced patient-provider relationship when an error has occurred.

CHAPTER 8

MEDICAL ERROR DISCLOSURE

In today's healthcare landscape, disclosing medical errors is not only an ethical imperative but also a regulatory requirement. Hospitals must adhere to established standards and protocols, which can vary based on jurisdiction and healthcare regulations. Key standard requirements include a prompt notification, comprehensive explanation, apology, support, follow-up, documentation, and compliance with legal obligations (regarding notification of local, state, or national regulatory bodies). After disclosure, many will hold educational training sessions and work towards quality improvement to prevent similar errors from occurring again.

It is evident that there is a necessity for transparency, accountability, and focus on patient-centered care when disclosing errors. Yet, there is often a gap between clinical practice, the theoretical model, and patient expectations. From an ethical perspective, it is interesting to explore factors influencing the seemingly straightforward call to be truthful and transparent. Are there situations where withholding error information is justified or cases for which the patient would prefer not to know about an error? What is the protocol if harm was avoided or not incurred at all by the error? Who has the authority to make such decisions or determine the negligibility of an error? Using a modern context to understand preference and perception of error disclosure both by patients and providers allows us to better shape patient safety guidelines, better patient outcomes, address provider mental health, allow for patient-centered care, and decrease the financial and emotional burden of errors on society.

Gallagher et al. completed a series of thirteen focus groups with physicians and the public to understand attitudes and perceptions regarding medical errors. The consensus among patients was that patients should be told what happened, the implications of the error on their health, why the error occurred, how the problem will be corrected, and how future errors will be prevented. Patients also wanted assurances that the error would not affect them financially and expected the involved parties to express regret. Now, most physicians agree and desire that errors should be fully disclosed to patients. However, in practice, many "choose their words carefully" and try to "spin" the error in the most favorable light possible and thus fail to clearly explain the error and its effects on the patient's health. A subsequent study surveyed 2500 practicing physicians with four distinct scenarios in which a medical error led to patient harm. 56% of respondents reported that they would mention the adverse events, but only 42% said they would disclose that the adverse event resulted from a medical error [9, 26].

Mandatory disclosure of error and adverse events, considered to be standard of care, is required by accrediting bodies like the Joint Commission and endorsed by many societal codes of conduct. The National Quality Forum has also published safe practice guidelines for disclosure following unanticipated severe outcomes, including those caused by system failures [9]. The process includes an explicit statement that an error has occurred, a timely and clear explanation of the error, acknowledgment of those involved, reasons for the error, implications for the patient's future health, plans for future prevention, and eventually, results of causal investigations [9, 10]. Deciding who will be present for such a disclosure conversation, as well as location and timing, is crucial. If an error has occurred in a teaching hospital, the process of error disclosure may be

influenced by additional considerations such as institutional culture, educational objectives, and supervision of trainees.

The National Quality Forum also expresses the unrealistic nature of expecting all providers to be experts in difficult conversations regarding error disclosure and apology statements. Few physicians receive formal training, contributing to communication gaps; thus, it is recommended to have a "disclosure coach" to guide physicians [9].

Additionally, burnout and onerous workloads have become common in physicians' practice; having a "disclosure coach" can help offset additional work when physicians are overwhelmed and hurried. As an independent team member, coaches can also spend more dedicated time with the patients and provide more support. Granted, this is a system issue regarding time and responsibilities, but if we cannot change the system just yet, at least we can modify some aspects for the benefit of the patients.

Aljabari et al. have identified and presented seven common barriers to reporting medical errors. Fear of consequences is the most reported barrier worldwide, while work climate and culture is the most reported barrier in the United States [24]. Despite evidence demonstrating patients citing poor communication and lack of transparency as primary drivers to file a lawsuit, this fear of litigation, shame, blame, and reputational concern have distinct implications on the transparency required for disclosure [10]. Besides these concerns of the individual, there is also an institutional desire to protect reputation and the organization financially.

Working towards suspending a fear of consequences, hospitals have begun implementing disclosure programs focused on transparency, proactive error identification, and implementation of viable solutions, often including communication

training and financial compensation. Of note, hospitals with such disclosure programs have not seen a higher malpractice burden, and many have observed fewer malpractice claims and reduced costs overall. These reflect "communication-and-response" strategies, which emphasize amicable resolution with full disclosure and apology and lead to less litigation [21].

More traditional arguments for withholding information from patients are grounded in the paternalistic role of physicians and based on the idea that knowledge of an error causes undue suffering, and concealment protects the patients and their confidence in the medical profession [9]. However, a recent review of the literature published in the Joint Commission Journal regarding patient preference and perceptions of disclosure analyzed that overall, participants preferred that medical errors be disclosed to them fully, with the physician taking responsibility [21]. This review pulls data from six studies published in 2002, 2006, 2008, 2009, 2013, and 2021, with the largest sample size of 1,274 participants in the 2006 study from Switzerland. To note, none of the six studies investigated medical error disclosure in real-world settings, as all studies asked participants to weigh in on hypothetical scenarios. As such, the authors documented that it was not possible to evaluate medical error disclosure influenced by lived experiences of marginalized patient populations and that existing disclosure recommendations only may be appropriate for a wide range of patients. However, the study stated that future studies should examine differences in race/ethnicity, age, and educational attainment [25, 26, 27] when it comes to medical error disclosure.

Closing the gap between patient expectations and clinical practice requires a cultural shift toward transparency and accountability for medical error disclosure. As long as humans are involved in healthcare, medical errors are unavoidable, and it is the physician's duty to offer patients a full disclosure. There may not be one person to blame, or the error may be due to a system failure, but the function of reporting the error is to mitigate future medical errors. Multiple studies have identified that if error-prone situations are reported and managed by a modification of the system, a decrease in the frequency of the error and concomitant errors associated with it will occur [24]. While individuals need to be held accountable for errors attributable directly to them, for the greatest good for the greatest number of patients, the medical system and culture must be revised so that reporting errors leads to system improvement and a reduction in future error rather than focusing on individual punishment.

CHAPTER 9

THE FINAL CONSEQUENCES

We have now established that medical error disclosure is a complex and tricky topic characterized by multiple perspectives and policies from different stakeholders with an overall push towards transparency from both patients and providers. The challenge lies in maintaining transparency and accountability without incurring severe consequences and punitive measures, acknowledging the inevitability of errors in medicine.

The legal ramifications of medical error are significant and hold a substantial influence on error disclosure. According to data from the National Practitioner Data Bank, the United States witnessed approximately 8,100 medical malpractice payments in 2018 alone. These payments, for which the total amount fluctuates annually, typically amount to billions of dollars. In 2018, the total medical malpractice payouts amounted to around \$4.03 billion [28]. Of note, many medical malpractice claims are resolved through negotiated settlements between parties involved rather than proceeding to trial. Those that do proceed to trial will address the four elements of a civil suit: duty, breach, causation, and damages. One poignant and nationally known case of medical malpractice is that of comedian Joan Rivers, who tragically passed away in 2014 following a routine endoscopy. Although the terms of the settlement remained undisclosed to the public, reports indicate that it amounted to a multimillion-dollar settlement with the clinic and doctors involved.

Medical malpractice claims only represent a portion of adverse events, with some cases often going unreported or without legal action. Common claims in medical

malpractice cases include misdiagnosis, surgical errors, medication errors, birth injuries, and a failure to diagnose.

While medical malpractice is indeed a serious matter, it typically does not result in the immediate suspension of a medical license. Instead, medical malpractice falls within the realm of civil law, involving claims of negligence or misconduct in the provision of medical care that are then addressed through the legal system rather than by regulatory licensing bodies. Nonetheless, certain situations can prompt medical board disciplinary action (i.e., suspension, revocation) to safeguard public safety, including multiple instances of malpractice indicating a consistent failure to meet the standard of care, gross negligence or recklessness, failure to comply with licensing regulations, criminal convictions, or impairment secondary to substance use.

For physicians, it is paramount to review one's malpractice coverage before disclosing any errors to ensure one does not inadvertently violate the terms and conditions of their policy, which could invalidate the coverage. Certain types of claims or situations can also be explicitly excluded from coverage, such as intentional acts, criminal acts, sexual misconduct, and services performed out of professional scope. Prompt reporting of claims or incidents to the insurer is also typically mandatory, and failure to do so could jeopardize coverage. Malpractice insurance policies are generally issued for one year and must be renewed annually. The terms of renewal, including premium rates and coverage changes, can vary depending on the insurer and insured's claim history (i.e., severity and frequency of claims, loss history), specialty, and geographic location. In addition to increasing premiums, lost malpractice suits associated with a damaged reputation may also lead to a further loss of income due to decreased

referrals. According to data from the Medical Liability Monitor's Annual Rate Survey, which provides insights into medical malpractice insurance premiums, average rates can vary widely, ranging from several thousand dollars to tens of thousands of dollars per year per healthcare provider. For primary care physicians, average annual premiums may range between \$5,000 to \$10,000 or more in comparison to specialists like surgeons or obstetricians, who face higher premiums ranging from \$10,000 to \$50,000 due to the increased risks associated with their practices [9].

The innate issue with medical malpractice suits lies in their tendency to demonize errors, inhibiting doctors from openly acknowledging and discussing them. The tort system makes adversaries of patients and physicians, leading each party to present heavily biased and subjective versions of the events. The principal question becomes, "What is a day of pain worth?" The court becomes a theatre presenting a black-and-white narrative (which, in reality, medicine never is), and whichever side can be the most persuasive will prevail. In fact, the likelihood of a patient winning a lawsuit is often a reflection of the severity of the outcome, regardless of whether it was caused by disease, unavoidable risks of care, or medical error. Moreover, plaintiffs' attorneys have the latitude to name virtually anyone tangentially related to the case to find someone who can be held financially liable and has the coverage for the payout. This practice can lead to a broad net being cast, potentially implicating individuals with marginal involvement in the actual events under scrutiny.

Thus, the legal implications of disclosure weigh heavily, creating a situation where it can be impossible for physicians to have candid discussions with patients regarding mistakes. In fact, hospital lawyers often caution doctors that while they must

inform patients about any injuries that occur, they should never suggest culpability. Doing so could potentially result in their "confession" being used against them in court as stark and damning evidence.

This raises an important question, given a physician's duty to offer patients a transparent and full disclosure, what is the function of apologies in the context of medical error? Disclosure relates the facts of patient care, whereas an apology is a social construct designed to make amends after wrongdoing. Regarding the apology, there is an important distinction to be made between a "protective" and a "full" apology; protective apologies express regret and/or sympathy, whereas full apologies contain an admission of error and self-criticism [9]. The challenge with apologies lies in their legal implications, as we touched on before, which is why physicians must lobby for legal protections, allowing for apologies without fear of legal repercussions. According to the Patient Safety Network (2019), more than two-thirds of states have adopted laws that preclude some or all information contained in a practitioner's apology from being used in a malpractice lawsuit or litigation proceedings, promoting transparent disclosure, and potentially benefiting both provider well-being and patient confidence in the healthcare system. However, it is essential to note that these apology laws vary between states, with some failing to safeguard full apologies, leaving self-critical or incriminating statements vulnerable to legal liability. There also may be instances where apologies initially appear to be protected by law but ultimately become admissible in court, potentially resulting in the denial of coverage by malpractice insurers.

Such legal protections also extend beyond medicine. For example, the Federal Aviation Administration (FAA) offers pilots who report an incident within ten days

automatic immunity from punishment. Reports also go to a neutral, external agency with no interest in leveraging the information against individual pilots.

Now, one might question why the goal should not be to hold individuals accountable and allow errors to proceed to court so that compensation to patients can be provided. However, evidence suggests that more than litigation is needed to effectively reduce future errors or improve patient safety, as will be discussed shortly. Moreover, patients often do receive compensation without requiring a lawsuit, especially when a transparent disclosure has been made, and regret expressed [11]. This alleviates both the burden on providers and patients from having to utilize the legal system. Conversely, nondisclosure can cause patients to take an adversarial position towards physicians and medical institutions, seeking punitive damages in court in addition to loss-based damages [12].

It is these findings that underscore the rationale behind early disclosure programs [9]. The Veterans Affairs Medical Center in Lexington, Kentucky, was among the pioneers in implementing policies to proactively review hospital-related injuries, and if secondary to a medical error, to fully disclose the error and provide early compensation in the form of settlements for lost wages, additional medical expenses, and resulting pain and suffering [13]. During the ten-year study period, the average payout for settlements stood at \$16,000, markedly lower compared to the national VA average of \$98,000. Only two lawsuits went to trial, and despite being in the top quartile for claims filed, the hospital ranked in the lowest quartile for total payouts [12,13]. The University of Michigan later employed a similar "communication and resolution" program, resulting in

a 50% reduction in the number of lawsuits and around 45% reduction in litigation costs [14].

As briefly discussed earlier in this chapter, solely holding individuals accountable for errors through litigation does not consistently prevent or reduce the occurrence of future errors. What has been proven to be effective in mitigating future errors is honest reporting and error analysis. Adverse events should be reported to quality improvement staff who can initiate analyses such as a root cause analysis (RCA) – a systematic method used to identify the fundamental factors, underlying problems, or incidents to understand why they occurred and work towards preventing their recurrence in the future – or critical incident analysis, which involves carefully conducted interviews to capture detailed information about and contributing factors to dangerous incidents and look for patterns among different cases. In cases where errors cannot be eliminated directly, attention is redirected to developing a reliable means of early detection. Note that these peer reviews and RCAs are typically not discoverable in a legal setting. Incident reporting, however, can be discoverable, which has had a chilling effect on reporting, thus counterproductive to our overarching goal to prevent error recurrence and avoid litigation.

One consequence of litigation, undoubtedly, is the practice of defensive medicine, as a fear of consequences and malpractice accusations affect the practice of medicine and patient care. Positive defensive medicine manifests as overutilization, excessive testing, over-diagnosis, overtreatment, and extensive documentation in electronic medical records (EMRs). Conversely, negative defensive medicine involves avoiding, referring, or transferring high-risk patients. These defensive practices are onerous not only to

physicians and administrators but also to the healthcare system and patients and ultimately undermine optimal healthcare delivery [22].

Among these practices, the role of EMRs is particularly interesting, given its widespread implementation in recent decades. With detailed and time-stamped charting, there has been increased acknowledgment of an individual provider's work and ultimate culpability. Providers must ensure that their documentation accurately reflects the truth, as it serves as evidence of what occurred and what has been observed. Without documentation, there is no proof of the work provided or thoughts invested, and thus, opens providers to liability.

This reality often leads to excessively long notes, where providers meticulously record seemingly minor details to demonstrate thoroughness (i.e., “patient presents with finger pain; no rash, cough, or fever present; no history of travel to Australia”). Some providers will also include justifications and communications with other providers in their notes as a means of safeguarding their innocence and good intentions in the event of adverse outcomes (i.e., “physician updated on patient’s tachycardia, no medication ordered at this time”).

These defensive practices align with hospital "deny-and-defend" strategies, which are heavily criticized for providing limited information to patients and avoiding responsibility. Patients then perceive hospitals as dishonest and resort to litigation to force open and honest discussions [23], thereby defeating the initial purpose of such defensive measures to prevent lawsuits.

One final consequence of disclosure that warrants discussion in this chapter is its subsequent effect on patient confidence in the medical field and healthcare system, as well as its impact on provider mental health.

A past error can significantly tarnish the reputation of an institution and instill doubt in a patient's confidence and trust in healthcare providers. This occurrence is increasingly observable through social media, where individuals share their doubts about the medical field and raise awareness of mistakes made in their own care. It has also precipitated an anecdotal uptick in patients trying to record their medical visits as a means of obtaining proof in cases of misunderstandings, disputes, or legal issues related to their medical care. This trend has prompted hospitals to enact regulations prohibiting the use of recording systems during visits.

Regarding provider mental health, the disclosure process can be deeply challenging for physicians, evoking feelings of embarrassment, stress, and discomfort. Despite these emotional hurdles, it is a necessary and understood step as physicians, outlined in the Hippocratic Oath, undertake a tremendous sense of responsibility for the care of their patients and bear the burden of their mistakes. The struggle with feelings of guilt, shame, and crisis of confidence often occurs in isolation due to the taboo nature of mistakes and can thwart efforts for self-improvement, impeding meaningful change. Though physicians must be aware of their limitations, to be plagued by self-doubt is needless and detrimental. Dr. Troyen Brennan expresses the following about surgeons: "If you're not a little afraid when you operate, you're bound to do a grave disservice to a patient." Thus, physicians must navigate the balance between confidence and humility in their practice.

Furthermore, for those providers who also hold teaching positions, assuming responsibility for one's own failures is challenging enough, but being entrusted with the education and training of another adds an additional layer of complexity. Reflecting on what could have been done differently becomes a painstaking process, especially when teaching requires practice on live patients. Simulation can offer a valuable substitute, but it does not fully replicate real-life scenarios and is often expensive and logistically challenging.

Studies have demonstrated that physicians desire support following a medical error but frequently encounter a lack of both personal and administrative support, contributing further to their poor emotional states [23]. Some coping strategies include seeking professional counseling or initiating quality improvement projects; discussing the event with others can also be helpful but may be problematic if the case proceeds to litigation. By fostering a supportive environment and implementing effective coping mechanisms, healthcare professionals can navigate the aftermath of errors with resilience and continue to deliver high-quality care to their patients.

To offer some perspective from an experienced physician's standpoint, I would like to share this poignant, almost poetic, excerpt from Dr. Goldman's TED Talk [8]:

We have this idea
that if we drive the people who make mistakes
out of medicine,
what will we be left with, but a safe system.
But there are two problems with that.
And what I've learned
is that errors are absolutely ubiquitous.

And here's the thing.
In a hospital system
where medical knowledge is doubling
every two or three years, we can't keep up with it.

I don't take the same history.
I'm not a robot;
I don't do things the same way each time.
And my patients aren't cars;
they don't tell me their symptoms in the same way each time.
Given all of that, mistakes are inevitable.
So if you take the system, as I was taught,
and weed out all the error-prone health professionals,
well, there won't be anybody left.

What they need is a redefined medical culture.
And it starts with one physician at a time.
The redefined physician is human,
knows she's human,
accepts it, isn't proud of making mistakes,
but strives to learn one thing
from what happened
that she can teach to somebody else.
She shares her experience with others.
She's supportive when other people talk about their mistakes.
And she points out other people's mistakes,
not in a gotcha way,
but in a loving, supportive way
so that everybody can benefit.
And she works in a culture of medicine
that acknowledges
that human beings run the system,
and when human beings run the system, they will make mistakes
from time to time.

Medical errors are undeniably frightening and carry profound consequences for both patients and physicians. However, it is important to remember that not every injury stems from a mistake, and an adverse outcome does not necessarily equate to or constitute negligence. This chapter serves to emphasize that litigation is not always an appropriate measure and may, in fact, result in more harm than good. Instead, admitting the inevitability of error and cultivating a culture of transparency can build patient

confidence in healthcare, promote provider well-being and ongoing learning, all while ensuring patients receive proper compensation and care following an error.

CHAPTER 10

CASE SCENARIOS FOR THOUGHT

As an exercise, consider the following three cases. Reflect on what error was committed, the harm inflicted, the most appropriate method of disclosure, and any other points that should be considered when addressing the matter. What are some contributing factors or influences in each of the scenarios?

Case 1: A 57-year-old Russian-speaking female arrives at the emergency department complaining of fevers, shortness of breath, dry cough, and chest pain worsening on inspiration. A chest x-ray and thoracentesis are performed, confirming a diagnosis of empyema, an accumulation of infected fluid in the pleural cavity around the lungs. The healthcare team agrees that chest tube placement is the best solution to drain the empyema. A junior resident places the chest tube under the guidance of their senior, but they are unable to get an interpreter on the line, relying on their medical student's basic understanding of the Russian language. The junior resident places the chest tube, known to be a painful procedure, and it is clear that the patient is in discomfort. In a hurry, the team finishes the chest tube placement and attends to their lengthy list of patients. A few hours later, the team checked imaging on the empyema patient only to realize that the chest tube was incorrectly placed in the back, likely within muscle and fat rather than the pleural cavity. They rush to the patient to remove the chest tube, replace it, and obtain confirmatory imaging. The patient is thankful, given that the first chest tube placement was incredibly painful and did not address her symptoms.

Important Points:

- The patient is Russian-speaking, and the healthcare team failed to obtain a certified interpreter during an intervention; this can have an impact on the patient's understanding of the intervention, subsequent decision-making, and ability to express symptoms (i.e., pain).
- A junior resident is placing the tube under the guidance of their senior; these are not experienced hands, though it is a crucial procedure to learn and practice.
- The patient's initial discomfort during the first tube placement was not investigated thoroughly and was likely due to the tube's incorrect placement.
- With a heavy workload, the team did not receive confirmatory imaging in time and allowed an incorrectly placed, painful chest tube to remain in a patient for several hours.

Case 2: On rounds in the intensive care unit, the attending announces her plan to downgrade the patient to the floor. This is the attending's first time working with this patient, but she received a sign-out from the previous attending physician. Coincidentally, the medical student assigned to this team has also rounded on this patient for the past three days. After the attending's announcement regarding the disposition status of the patient and the completion of rounds, the student pulls aside a resident to express concerns regarding the patient's blood pressure overnight. In fact, the patient had several bouts of profound hypotension over the past two nights, which was concerning, especially as this patient was post-operatively recovering from a surgical intervention. The resident spoke with the attending, and both agreed that this patient was not stable enough for the floors, thanking the student for their detailed observation.

Important Points:

- The attending is unfamiliar with this patient, highlighting the importance of a standardized and detailed sign-out from the previous attending physician.
- The hypotensive events were not accounted for during rounds, an omission from critical overnight events to be discussed daily, nor were they identified when discussing the downgrade of the patient, a necessary prerequisite to review when determining disposition.
- Hypotension after surgery is critical to note, as this escaped the team's attention apart from the medical student, who generally is not a part of primary decision-making.
- The medical student reports their concerns to the resident first, who then shares the concern with the attending physician. This is indicative of the hierarchy in medicine and speaks to the communication style of the team.
- If this unstable patient was downgraded to the floor, a myriad of issues could have occurred, including (1) lack of appropriate attention, resources, and nursing care, (2) another hypotensive event resulting in end-organ damage, cardiac arrest, or another adverse event, and (3) readmission to the intensive care unit.

Case 3: A 72-year-old man arrives at the emergency department with severe urinary retention. The resident in charge has an extra twenty minutes and conducts a thorough chart review before going to see the patient. He sees an incidental finding on imaging the patient had during an admission for abdominal pain ten months ago. The finding described suspicion of prostate cancer and recommended follow-up with a

urologist. After speaking with the patient, the resident consults his fellow urology resident and obtains repeat imaging. It is evident that the cancerous process has progressed, and they diagnosed the patient with stage III prostate cancer. The residents kindly ask the patient why they never followed up on their imaging from ten months ago since incidental findings are generally reported to the patient so that they can obtain follow-up. The patient says nobody ever informed him of any imaging, only that he had a "peeing" problem, and that even if the information was on his health portal, he does not know how to locate it, nor does he have access to a computer. Fortunately, the residents are able to start him on treatment; however, since the cancer has advanced considerably over the past ten months, the patient now requires more modalities of treatment and will be hospitalized for a significant period of time.

Important Points:

- The patient's incidental findings were not appropriately communicated to him (health literacy is an essential factor to consider when giving information), preventing prompt follow-up and a delay in imperative care.
- The patient has poor computer literacy and access to his electronic health portal, which prevented him from seeing the incidental findings and his ability to advocate for his care.
- If the resident was unable to conduct a thorough chart review, the incidental finding may not have been discovered even during this admission, highlighting a necessity for better documentation and follow-up.

CHAPTER 11

INTERSECTION OF BIOETHICS AND ERROR

This brief chapter will explore two ethical constructs that pertain to the disclosure of an error. The consequentialist theory suggests that one should do what will achieve the most beneficial overall outcome. The deontological theory suggests that one should do the act that fulfills one's duties or obligations.

Regarding the consequentialist theory, there are a myriad of beneficial outcomes from disclosing an error. This includes the prompt treatment of consequences that result from the error, avoiding further harm. Disclosure also safeguards patient autonomy, as they can make informed decisions regarding their care, and prevents violation of informed consent for their future medical care. Withholding information also violates the ethical tenets of non-maleficence, beneficence, and justice, which are central to the practice of medicine. Additionally, if a patient cannot seek compensation for the harm they were subjected to, they are prevented from obtaining justice [9]. Regarding the deontological theory, physicians have a fundamental responsibility to avoid harming patients and act in the best interest of the patient's health, even when it may be detrimental to the physician's own financial or professional well-being.

Moreover, as we have spoken in the previous chapters, simply engaging a patient in their care is one of many tools that are useful in reducing patient harm. Promoting this patient autonomy, builds trusting patient-provider relationships with clear expectations, betters health outcomes and patient safety, and can lead to minimal litigation and financial savings after error disclosure [30].

Lastly, though many medical errors result in significant morbidity or mortality, others can have no clinical consequence. Although interesting, the discussion of their related disclosure and ethical implications is beyond the scope of this paper.

CHAPTER 12

CONCLUDING REMARKS

The exploration of medical errors and their intricate interplay with various aspects of the healthcare system, legal framework, medical education, and societal perceptions reveals the complex nature of addressing and mitigating these unavoidable occurrences. Despite the relentless pursuit of perfection in medicine, the stark reality of human fallibility underscores the inevitability of medical errors. Information is inadequate; the science is ambiguous; one's knowledge and abilities are never perfect; everything is not under one's control. Healthcare providers may have a difficult time accepting their fallibility, coming to terms with the ambiguity of medicine, acknowledging mistakes and distinguishing them from failure, and disclosing errors, but it is important to acknowledge and learn from these errors to uphold bioethical principles, maintain trust within the patient-provider relationship, and provide safe patient care.

Throughout the chapters of this thesis, we have traversed the arduous journey of medical training, navigating societal expectations for flawless performance while recognizing the inherent uncertainties and complexities of healthcare practice. From the structured checkboxes of academic milestones to the hands-on experiences in teaching hospitals, the process of becoming a physician is marked by a delicate balance between expertise and humility, aspiration for perfection, and acceptance of fallibility. We have discussed the balanced need for expertise and allowance for practice under supervision in order to train the next generation of physicians; exploring the ethical dilemma of allowing trainees to gain autonomy and practice on patients while striving to provide the best care possible, upholding the tenets of non-maleficence and beneficence.

When errors or complications do occur, we have highlighted the invaluable platform the M&M conference provides for retrospective analysis, learning, and quality improvement. While helping foster a culture of accountability and continuous learning within medical institutions, M&M often brings up the subject of "bad" doctors. However, as we have discussed, the perception of "bad" doctors underscores the need for nuanced approaches to support struggling physicians and address problematic behaviors while upholding the principles of justice and due process.

Moreover, errors can stem from structures larger than the individual doctor. Systematic errors within healthcare systems reveal the need for comprehensive quality improvement initiatives, addressing issues ranging from inadequate protocols to biases affecting patient care. These errors are challenging to address because they affect multiple individuals and departments, often leading to a cascade of mistakes. However, they are essential to address particularly to tackle issues like health equity and justice and gain invaluable insights into root causes of errors and systemic flaws.

Transitioning from medical error itself to disclosure of error, we discussed the evolving patient-provider relationship amidst shifts in healthcare and medical philosophy, emphasizing transparency, open communication, and mutual trust when disclosing error. Recognizing disclosure as a critical ethical imperative, we discussed the overarching aim to reduce error recurrence and hold paramount patient safety. Legal ramifications further complicate the landscape of medical errors, highlighting the delicate balance between accountability for healthcare professionals, regulatory measures governing error disclosure, litigation as a means of punitiveness, and working towards preventing future error recurrence.

When navigating the aftermath of errors, patient health must be prioritized, but it is also essential to recognize that the emotional toll on physicians underscores the need for supportive measures and coping mechanisms while preserving professional well-being and the quality of patient care they then provide.

Despite the challenges, promoting a culture of transparency, accountability, and continuous learning is essential to mitigate the impact of errors, uphold ethical standards, and enhance patient care. We cannot avoid errors as they are an inherent part of medicine. Instead, we must try our best to implement safeguards to prevent future errors and learn to address them adequately for both patients and physicians when they do occur. Discrepancies between ideal practices and actual physician behavior in error disclosure are something we can focus on in addition to improving the healthcare system itself.

In conclusion, the discourse surrounding medical errors calls for systemic reforms, cultural shifts, and ethical considerations to address multifaceted impact of medical errors on patient safety, provider well-being, and overall trust within the healthcare system. Through collaborative efforts and a steadfast commitment to learning from mistakes, the healthcare community can navigate the complexities of medical error while advancing the principles of beneficence, non-maleficence, and respect for patient autonomy, ultimately ensuring the delivery of high-quality, compassionate care for all.

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