The Stories Clinicians Tell: Achieving High Reliability and Improving Patient Safety

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ABSTRACT

The patient safety movement has been deeply affected by the stories patients have shared that have identified numerous opportunities for improvements in safety. These stories have identified system and/or human inefficiencies or dysfunctions, possibly even failures, often resulting in patient harm. Although patients' stories tell us much, less commonly heard are the stories of clinicians and how their personal observations regarding the environments they work in and the circumstances and pressures under which they work may degrade patient safety and lead to harm.

If the health care industry is to function like a high-reliability industry, to improve its processes and achieve the outcomes that patients rightly deserve, then leaders and managers must seek and value input from those on the front lines—both clinicians and patients. Stories from clinicians provided in this article address themes that include incident identification, disclosure and transparency, just culture, the impact of clinical workload pressures, human factors liabilities, clinicians as secondary victims, the impact of disruptive and punitive behaviors, factors affecting professional morale, and personal failings.

INTRODUCTION

Those of us who are privileged to be health care professionals have chosen our professions because we view ourselves as benevolent, compassionate, and diligent. We are not particularly special people, but we do take on enormously special responsibilities—some would say sacred responsibilities and a sacred trust. It is not our intention to hurt anyone or to create situations in which our patients suffer because of patient safety incidents. Patient harm, the frequent outcome of patient safety incidents, is often the result of insufficiencies of the health care system and processes. However, patient harm also may be caused by clinicians or support staff errors of omission or commission, to which numerous human factors contribute. Often, these contributing factors align to result in causality.[1]

Harm to patients is often the outcome of a cascade of missteps arising from a variety of processes, involving multiple people and ultimately ending at the bedside.[1] Despite our best intentions, things will certainly go wrong from time to time because we, the hospitals and health care systems that we work in, and the innumerable processes that contribute to the accuracy of diagnosis and the provision of therapeutics, are fallible and imprecise. This is the terrain on which we stand.

Every year thousands of patients will die, not of their illnesses per se, but because of insufficiencies, inefficiencies, and occasionally even outright failures of health care system processes and of humans.[2] Even though there have been substantial improvements in some areas since 2000, more broad-based improvements have not been consistently achieved, much to our dismay.[3-6] The way we provide health care must undergo a major transformation[7] to improve patient safety, especially in light of the predicted tsunami of illnesses that will soon develop related to the obesity pandemic.[8]

It has been argued that if the health care industry would adopt or adapt the methods and paradigms of industries noted for high reliability, systemwide improvements in safety and health care outcomes would surely be realized.[9,10] Industries such as aviation and nuclear energy are often touted as prime examples where safety is the highest priority and where entire organizations are structured to anticipate and eliminate risks. A quintessential characteristic of such industries is that leaders and supervisors seek and value the opinions of frontline staff, ie, those working on the flight decks and on the shop floors.

Caring for patients is far more complex than flying an airplane, and the health care industry is not a high-reliability industry. Health care outcomes are intimately related to the collaborative efforts of both clinicians and patients, engaging to achieve defined goals. Passengers on an airplane, on the other hand, are passive recipients of services provided by the flight crew working as a team in a highly engineered, multiple fail-safe environment. Although patients are active participants in much of their care, they are not so highly engineered as to have redundant fail-safe mechanisms and are often encumbered by numerous morbidities and comorbidities. Patients are partners in health care and safety, and optimal health outcomes depend on their full engagement.

Patients and clinical staff are the experts on the front lines of health care. The stories that both groups may share should be valued and will provide opportunities for learning.

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METHODS

Stories have been provided to the authors by clinicians from across the spectrum of professionals that constitute our industry. Personal and institutional identification details have been removed, and where necessary, the stories have been edited and reformatted to provide consistency in presentation. In each instance, key patient safety issues or sources of error have been identified, and the elements of unreliability that are encompassed in each story are highlighted.

Themes to be addressed include incident identification, disclosure and transparency, just culture, the impact of clinical workload pressures, human factors liabilities, clinicians as secondary victims, the impact of disruptive and punitive behaviors, factors affecting professional morale, personal failings, and, to some extent, the guild mentalities that are unique components of our profession.

Story 1: A Personal Failure
Shifting of Responsibility

A 10-month-old child was admitted on the weekend for evaluation of a renal mass, probably a Wilms' tumor. The institutional protocol required the oncology postdoctoral fellow to administer dactinomycin (Actinomycin-D) intravenously as soon as the renal vein had been clamped. The orders were written correctly and legibly, using a standard nurse-physician double-check process.

In addition to covering the inpatient oncology service, the fellow on duty had weekend obligations for the outpatient clinic and the bone marrow transplant unit, located in two different, adjacent hospitals. This particular weekend, two children with leukemia were to receive outpatient L-asparaginase therapy, and the fellow had to be present because of the risk of anaphylaxis. Recognizing this dilemma and not viewing the dactinomycin injection as something specifically requiring an oncology fellow to perform, the fellow arranged for an anesthesiologist to administer the chemotherapy. The fellow briefed her thoroughly regarding the dosage, even providing a copy of the prescription.

Unfortunately, an emergent cardiac surgery case was admitted, and the anesthesiologist, being pump-qualified, had to take responsibility for that case. She briefed a substitute anesthesiologist and believed that the situation was well in hand, but she did not inform the oncology fellow. The pharmacist preparing the chemotherapy made a decimal point error. Instead of preparing a dose of 97 μg of dactinomycin, he sent a syringe containing 970 μg. The substitute anesthesiologist did not recognize this error, nor did he check the dosage even though he was administering a medication with which he was unfamiliar.

Several hours later, a review of the medical record revealed the medication error. Although not immediately toxic, the effect on this child's bone marrow would be profound beginning a week after administration, and the fellow was reasonably certain that this child was going to die. The anxious fellow called his attending oncologist immediately to explain what had happened and to share his concerns that "we have killed this patient." The attending replied, "We do not know that this child is going to die. We can expect that she will encounter severe bone marrow suppression, but we do not know the outcome of that, and we need to be factual when we meet with the parents."

The following morning the oncology fellow and attending met with the parents. The fellow carefully explained that their child had received a higher-than-desired dose of medication and that he was very concerned about this. He apologized, explained that he would investigate this further, outlined the steps the health care team would take to protect their child, and promised to correct any discrepancies in care identified.

Although the child encountered profound bone marrow failure and spent three weeks in isolation, accompanied by much procedural pain and fear, she came through her experience wonderfully. She was ultimately cured of her Wilms' tumor.

For several months, the oncology fellow remained troubled and had many sleepless nights, but his attending oncologist remained supportive throughout this ordeal and encouraged him to remain on the front lines caring for patients. Most important, the parents also expressed their gratitude for his honesty, support, and compassion. Although personally devastated at the time of this incident, the fellow felt restored and validated by the parents' heartfelt gratitude and the support of the attending oncologist.

Elements of Unreliability

1. The protocol for intraoperative chemotherapy was not evidence-based.
2. A single oncology fellow was responsible for coverage in multiple departments and hospital settings.
3. A professional cultural barrier forestalled calling for backup unless there was a dire emergency.
4. The pharmacist made a decimal point error, and pharmacy double-check procedures for preparation of chemotherapy had not yet been established.
5. Communication between clinicians was problematic and not concise, so changing coverage issues were not apparent.
6. The substitute anesthesiologist administered an unfamiliar drug without a self-identified need for verification of dose or side effects.

Story 2: Delayed Diagnosis
When Work Volume and Task Saturation Impair Attention

A 4-year old girl was seen in an Emergency Department (ED) for evaluation of fever, tachycardia, flank pain, and toxicity. This ED was in a major urban hospital and was particularly busy on this winter's evening. Despite established protocols for rapid nurse triage, the child was not flagged to be seen urgently by a physician, and a "sepsis panel" of blood and urine laboratory work had not been ordered by the triage nurse: a young, first-year nurse only 4 months out of nursing school. The ED was overloaded with many complex patients, some on gurneys in the hallways, which was not unusual. The physician was nearing the end of a 12-hour shift and had not eaten in 6 hours.

The child was initially evaluated by the physician about two hours after the nurse triage. After performing a physical

examination, the emergency physician asked the nurse to alert her when the laboratory results had returned. While awaiting these results, the physician became involved with numerous other patients. Several hours passed and the patient's condition deteriorated, with increasing fever, flank pain, and now somnolence and hypotension. The nurses alerted the physician, who queried about the laboratory work but was informed that the studies had never been obtained. The physician reassessed the child and on clinical grounds diagnosed sepsis and pyelonephritis, started a regimen of antibiotics, and immediately admitted her. Although her diagnosis and treatment were delayed, she subsequently did well and was discharged after one week in the hospital.

An analysis of the events surrounding the care of this child, and more broadly the issues of patient volume and complexity in the ED, was undertaken by a group of seven ED physicians and nurses. Their comprehensive report identifying many areas for improvements was submitted to the hospital Chief Medical Officer and Chief Nursing Officers. The ED physicians believed that such issues were common in this environment and that some delayed diagnoses were common for all ED physicians. Patients might be harmed if improvements were not instituted, they reported.

At a meeting to review the comprehensive report, the ED physician who had cared for this child was openly criticized and chastised in front of her colleagues for her "lack of skills and competency." She was treated dismissively and punitively. The recommendations in the report were ignored, and no improvements were instituted.

Elements of Unreliability

1. Nurse triage protocols for determining priorities for care and obtaining standard laboratory studies for sepsis were not well used, and a relatively inexperienced nurse was responsible for triage.
2. There was insufficient ED staff and physical capacity to deal with the volume and complexities of patients requiring care, and there was no backup mechanism to bring in additional staff either from elsewhere in the hospital or from external resources.
3. The ED physician was task saturated because of case volume and complexity overload and was fatigued and undernourished, all of which may have impaired attention to detail.
4. Leadership of the institution failed to value the opinions of frontline experts in clinical care who worked in a system fraught with hazards.
5. A "just culture" paradigm was lacking, resulting in the ED physician being treated punitively instead of valued and rewarded for bringing forth her concerns.
6. No procedural changes were instituted because of this incident.

Story 3: Second Victim
When We Do Not Look out for Our Own

For about six months, a psychiatrist had been treating a young woman from a dysfunctional family setting for situational depression and anxiety but no psychotic symptoms.

Her boyfriend, who was emotionally abusive in the past, was now out of the home and had not been heard from for several months. The patient had been making considerable progress and was successfully employed as a sales clerk in the cosmetics section of a local department store, where she was expected to dress and look immaculate, which she did. She was doing very well.

One evening, the patient called the psychiatrist and was distraught. Apparently, her boyfriend had called from where he was living across the country and told her he was going to return to get his things and to "get even." Although the patient was of course very concerned and expressed anxiety, anger, and sadness, the psychiatrist did not assess her mental functionality as having deteriorated, and she advised the patient to come for an office visit in the morning. The psychiatrist even went over a brief, standardized checklist for suicide potential, as she had previously on many occasions early in their relationship.

Later that night, the patient walked onto a highway, was hit by an oncoming car, and died instantly.

An evaluation of this incident did not reveal discrepancies in care, and the psychiatrist's actions were professionally validated by the findings.

Unfortunately, the psychiatrist became despondent, suffering sleep disturbance and flashbacks, which did not abate. Sadly, she did not share these symptoms with colleagues or seek professional help. Her professional and personal life suffered tremendously, affecting her ability to care for other patients safely. When she finally approached her hospital Department Chief several months later, he was supportive and advised her to seek counseling, but passed off her concerns with the comment that "this happens to everyone on occasion, and you have to get used to it."

Elements of Unreliability

1. The hospital lacked an established support mechanism to ensure that clinical staff, involved in patient safety incidents, were provided with early identification and intervention services to modulate predictable posttraumatic stress symptoms and dysfunction.
2. Opportunities for preemptive interventions were therefore missed, leading to depression, degradation of morale, and a valued professional became a second victim.
3. Other patients were at least theoretically put at risk.
4. The Department Chairperson did not properly assess the vulnerability of this professional colleague and treated her dismissively, thus possibly further degrading her morale. He should have insisted she undergo a clinical evaluation.

Story 4: Standing up for Patients
Unlikely Hero at the Bottom of the Pyramid

A pediatric first-year house officer was sitting in the kitchen on the ward writing progress notes one afternoon when the kitchen staff brought an aluminum pot filled with hotdogs to be served for the children's lunches. He noticed that the water in the pot appeared to be tinged slightly blue-green. Because this troubled him, he called the kitchen and was told, "The water is often blue-green after hotdogs are prepared." That

did not seem right to him, and after comparing a sample of the water from the pot with tap water (side-by-side test-tube analysis), he sent a sample off for chemical and microbiological analysis.

At the same time, he discussed the situation with the nursing staff, and they all agreed that they would not feed the hotdogs to the children on the ward. When the kitchen staff was informed of this, they became belligerent, and the Director of Nutrition Service came storming into the ward. She angrily confronted the house officer. She berated him in front of others, but he did not back down and neither did the nursing staff. They refused to feed the hotdogs to the children and insisted that another meal be prepared.

The water in the aluminum pot yielded a pure culture of *Pseudomonas aeruginosa.* The refusal to feed the hotdogs to the children possibly prevented serious, hospital-acquired infections, particularly in immune-compromised patients.

Elements of Unreliability

1. Sloppiness, complacency, and lack of quality control in the kitchen compounded insufficient use of standard procedures for kitchen hygiene.
2. Evaluation of kitchen appliances and workspace identified several sources of contamination that could have been eliminated with appropriate maintenance and hygiene practices.
3. There was lack of hands-on management oversight in the kitchen because the Director of Nutrition Services remained aloof in her management style.
4. The Director of Nutrition Services did not respect the opinion of frontline clinical staff, especially the opinion of a junior house officer.

Story 5: Professional Abuse
When Colleagues Do Not Value Each Other

An experienced, highly respected nurse omitted a dose of antibiotics prescribed for an elderly patient recovering from pneumonia in the hospital. The patient was doing well on the fourth day of therapy and was discharged as expected three days later.

The nurse was working a night shift, having just switched from the daytime shift. A surge in new admissions resulted in task saturation, and "shift-change fatigue" possibly contributed to this oversight. When the error was identified, at the end of her 12-hour shift, the nurse alerted the medical resident, who became angry. He openly criticized the nurse in front of other staff, patients, and family members, calling her "a fool and disgrace to your profession."

This resident had a reputation for abusive behavior and had treated several nurses, including this nurse, harshly in the past. He previously had been counseled about this, but his behavior had continued without meaningful intervention by his supervisors.

The nurse became despondent and was found by colleagues later that morning sitting in a hallway sobbing and expressing her own sense of deep failure. Her friends advised her to talk with the attending physician and to share her concerns regarding how she had been treated by the resident. The attending

listened to what she had to say, and his advice, given in private, was to "buck up, get smart, and not be so sloppy next time."

The nurse became even more despondent and asked the head nurse to transfer her to another unit. Fortunately, the head nurse was more supportive and assertive; she confronted the attending and the resident with her concerns. The resident was formally reprimanded, and the attending physician admitted he was wrong and insensitive when he had talked with this nurse. Both the resident and attending apologized to the nurse at a ward nursing staff meeting.

Elements of Unreliability

1. The hospital lacked a just culture in which reporting of incidents is valued for learning and where the liabilities that affect human performance are discussed and addressed within a supportive framework.
2. The hospital lacked a succinct mechanism for modulating staff behavior and for dealing with verbally abusive staff members who criticize others, thus degrading morale.
3. The culture of this hospital did not encompass the concepts of respect, support, collegiality, and team.
4. An environment promoting joy and meaning in the workplace was lacking, thus possibly enhancing the risks of patient harm.

Story 6: Ward Coverage
Stifled Attempts for Improving Ward Coverage

A very busy inpatient unit cared for many elderly, medically complex patients. Recently the unit had experienced several patient safety incidents related to miscommunication that occurred during shift changes and were compounded by staff shortages. In addition, patients had been complaining that they did not know who their physicians were on any given day, especially during weekends. Although no one had been seriously harmed, the potential for serious harm had been a concern for both physicians and nursing staff. Professional morale was low, and several staff members were thinking of leaving.

Hospital policy required that patients be admitted from the ED if they had been there for four hours, regardless of whether there was capacity on the inpatient unit to accommodate these patients. In addition, community resources were insufficient to easily facilitate discharges of patients who required continuing care and observation. Thus, ward staff were "between a rock and a hard place," and patients were often cared for on gurneys in corridors until beds became available.

Five senior physicians responsible for patients on this ward, as well as the ward nurses, the ward nurse manager, patient representatives, and physicians and nursing resources from the community analyzed the situation; they formulated a list of suggestions designed to improve coverage and address the concerns of both professionals and patients. These processes would entail closer liaison between hospital and community resources to facilitate transitions of care from the ward to the community, utilization of standardized "handoff" checklists, and some restructuring of staff and coverage, including hiring one additional physician. These

proposals were presented to the hospital Chief Medical Officer and Chief Operations Officer by the senior physician and senior ward nurse manager.

The hospital leaders listened to the concerns and recommendations. After the Chief Operating Officer and nurse manager had left the room, the Chief Medical Officer criticized the senior physician, told him he did not have the "right stuff," and referred him for a stress management evaluation by the Occupational Health Division. The quality-improvement recommendations were ignored, and patient care was not improved.

Elements of Unreliability

1. There was an artificial guideline regarding times in the ED that forced patients to be moved before bed spaces were available.
2. The hospital and community resources functioned independently without the recognition of the need for close coordination between both components of the health care system to ensure early, safe return of inpatients to community settings more appropriate for continuing care.
3. The hospital leadership did not value the opinions of staff working on the front lines as experts in their respective fields, and thus did not implement their recommendations.
4. The views of patients, as critical stakeholders, were also ignored by the hospital leaders.
5. A dismissive, punitive attitude was displayed by leadership, which degraded morale, interfered with institutional learning, and undervalued continuous quality improvement efforts.

Story 7: Missed Diagnosis
When Personal Stuff Gets in the Way

A patient was being evaluated for chronic cough and was found on x-ray imaging to have a mass and pleural effusion on the right side of his chest. While reviewing an x-ray film taken six months earlier, Radiologist B identified a "not so subtle" nodule in the mid-lung field not previously reported. His colleague, Radiologist A, had missed this finding, and the patient was subsequently found to have an aggressive small cell carcinoma. Radiologist B did not report this incident because his view was "any of us could have made the same mistake."

Radiologist A was an impaired clinician. His marriage was failing, and he was medicated and had been drinking heavily, although not at work. On the day he had interpreted the first x-ray film, he had just come from a highly contentious meeting with his wife and their respective attorneys to review legal separation documents, and he was late arriving to work. He was emotionally distracted, rushed to get through the pile of films awaiting review, and relied heavily on heuristic shortcuts when interpreting the x-ray film in question. In addition, he had a strained relationship with his Department Head and had not shared his social circumstances or concerns with her.

The patient underwent surgery, radiation, and chemotherapy but died three months later. Radiologist A became despondent and was admitted after an alcoholic binge for detoxification and inpatient rehabilitation.

Elements of Unreliability

1. Radiologist A worked in an environment where difficulties handling personal stress were regarded as weaknesses and were generally suppressed.
2. His relationship with his Department Head was contentious, and thus the usual basis for senior professional mentoring and support was lacking.
3. The hospital Human Resources Department, although it had strong resources for supporting junior staff, regarded senior staff as having the "right stuff," and thus had not provided necessary access to counseling services.
4. Radiologist B, who identified the missed diagnosis, did not report this as a patient safety incident, thus eliminating any opportunity for learning and process improvement. His focus was on protecting his colleague, the fellow "guild" member, not on improving care for patients.

DISCUSSION

Taking care of patients is complex and demanding. Individuals who have committed to serve as health care professionals have answered an inner calling. We work under demanding circumstances, sometimes enormously demanding. Every day we not only confront a broad variety of patients with problems of varying complexity but also deal with challenges related to health care financing, business practices and pressures, malpractice and risk management issues, and the ever-changing terrain we call the American health care system. An appreciation of the challenges clinicians face may help identify unique opportunities for improvements in patient safety. By understanding the "guild cultures" of nurses, physicians, and other clinicians, and the challenges they confront day-to-day, new opportunities for improvements in patient safety may be realized, and the goals of achieving high reliability in all its facets may become more realistic and achievable.

CONCLUSION

The stories described in this article have identified many challenges that create barriers to providing safe, effective, and compassionate care. Juggling daily responsibilities in settings often defined by volume overload and task saturation may lead to a sense of complacency so pervasive that when we walk into hospitals, we fail to recognize how unsafe this environment can be and how unsafe we may be. In particular, we may fail to recognize just how challenging the processes of clinical diagnosis can be and how our judgment may be impaired by a variety of human factors, often those not under our control. Even our diagnostic processes are encumbered by intellectual biases that may affect our decision making,[11,12] and most of us fail to recognize this. No matter how one chooses to look at the practice of medicine, it is inherently complicated.

Patients' complaints and patients' stories, as well as the viewpoints of "patient experts" or patient stakeholders in health care, add texture and granularity to our understanding. Yet, there is much to be learned by the stories clinicians can share as well. ❖

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Daily Fight

We owe gratitude to those who drive off the enemy who flies at our throats;
are we not more indebted to the doctor who fights daily for our safety against
so many deadly enemies to life?

— Desiderius Erasmus, 1466-1536, Dutch Renaissance humanist,
Catholic priest, social critic, teacher, and theologian