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Chapter 1

Introductory Chapter: Medical Error and Associated Harm - The The Critical Role of Team Communication and Coordination

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Additional information is available at the end of the chapter

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1. Introduction

Healthcare safety is among the most important considerations when designing, building, and managing modern patient care facilities and systems. Among many reasons why healthcare systems have not inherently "evolved into safety" were the combination of provider individualism and the lack of early recognition of the importance of effective communication and coordination as the primary method of ensuring maintenance of safety standards throughout the entire patient care continuum [1]. The first two volumes of the *Vignettes in Patient Safety* focus on the development of patient safety champions [2] and the continued quest toward "zero error" performance across modern health systems [3].

As our clinics, hospitals, and more recently growing networks of facilities began to aggregate providers from diverse disciplines and training backgrounds, the need for better coordination and communication to ensure safe and seamless patient care became apparent [3, 4]. Growing teams of highly trained individuals who work together, yet may not know each other, became the reality of healthcare systems that require the performance of multistep tasks of great complexity [5, 6]. In this introductory chapter, we will discuss how team communication and appropriate coordination of care are instrumental to ensuring and improving patient safety, as well as to the overall functioning of the patient safety matrix across healthcare organizations (**Figure 1**).

The Institute of Medicine (IOM) defined six key measures to improve the overall quality of our healthcare system, including safety, effectiveness, timeliness, efficiency, equity, and focus on the patient [7]. The concept of patient safety has been an active area of opportunity for

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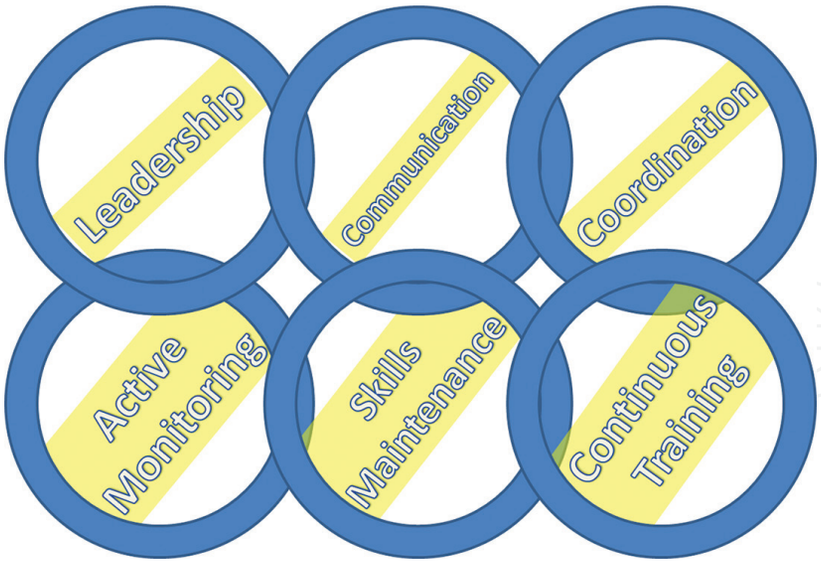


Figure 1. Idealized diagram summarizing key components of patient safety matrix in health care. Only selected components are listed, emphasizing the importance of good leadership, communication, and team coordination, in addition to other domains previously discussed in the *Vignettes in Patient Safety*.

hospitals [8] and clinicians, especially with the advent of objective scorecards and pay-for-performance measures [3, 7]. Patient safety began to transform into its current, more structured format in the early 1990s as it became increasingly apparent that hospitals were not as safe as previously thought and patients undergoing treatment at our healthcare facilities were shown to be at substantial risk of adverse events [4, 9]. The field of healthcare quality and safety encompasses numerous factors, most of which have been discussed in previous volumes of this series, including topics like leadership and organizational culture [3]. In this volume we will explore in greater detail key patient safety concepts in the context of team communication and coordination. It is only through appropriately coordinated work as a team, using proven communication techniques, that we can bring tangible benefits to new and existing healthcare platforms, making care delivery safer, and establishing greater trust in the current system [10–13]. Our exploration will emphasize the importance of teamwork in achieving the goals of the IOM and ultimately creating a universal and standardized environment and a culture safety (**Figure 2**).

Historically, the practice of medicine has revolved around a personal interaction between the patient and his or her healthcare provider [14]. This viewpoint has permeated the cultural and organizational perceptions within medicine, thus heavily influencing and shaping the delivery (and effectiveness) of care [15, 16]. Even with the changing institutional and work dynamics within the healthcare system, this individualistic paradigm continued to prevail, with physicians treating patients at the point of care, characterized by only limited collaboration and coordination with other healthcare professionals [17, 18]. The transition from a physician-centered system to a more patient-centered system required a paradigm shift that inherently led to increased care complexity and the need for better coordination and communication across multidisciplinary teams [7, 19, 20]. There is ample evidence linking adverse healthcare events

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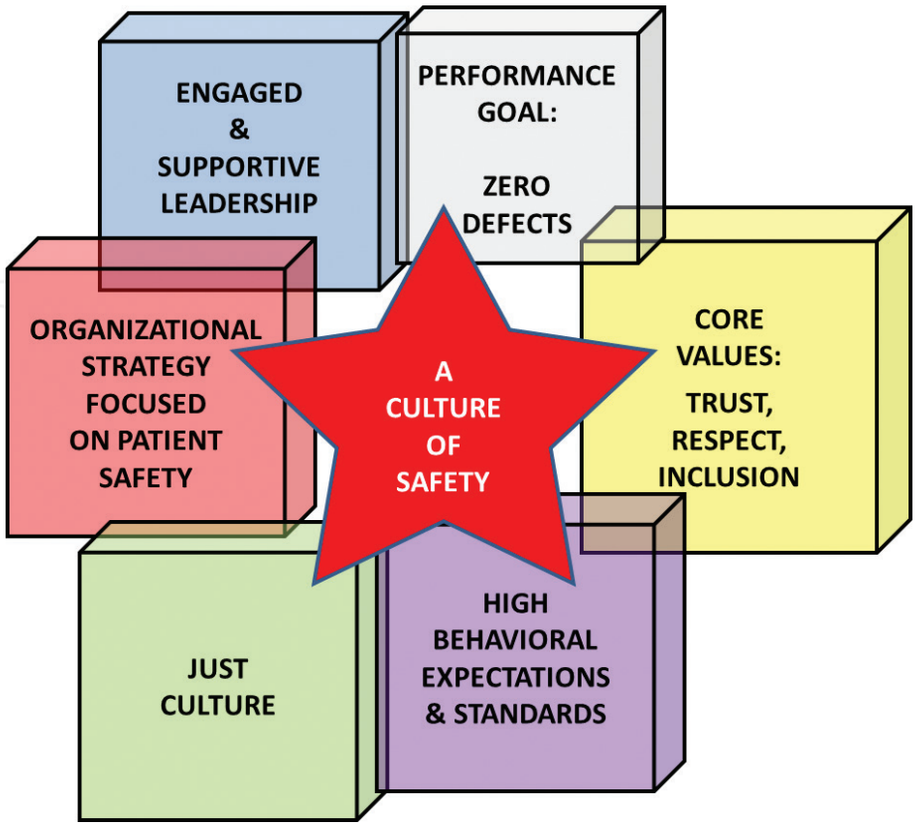


Figure 2. Key components necessary for the creation of institutional culture of safety.

with inadequate team communication and/or coordination, highlighting the critical nature of "teamwork" as opposed to the more traditional and flawed "individual blame" culture [4, 5, 21, 22]. Patient safety literature also indicates that teamwork is key to establishing and maintaining patient safety, and issues related to lack of collaborative approaches and/or communication often contribute to poor quality and safety record [21, 23, 24]. Support for constructive and collaborative thinking must permeate all levels of the organization [3, 4]. At the same time, we must recognize that effective teamwork and collaboration are not going to be inherently easy within a dynamic, complex, and unpredictable environment of modern healthcare systems. However, the above limitation should not serve as a perpetual excuse for failing to improve the current status quo, as proven by other high performance or high-stakes industries that have successfully adopted effective quality, safety, and reliability models [4, 25, 26].

Throughout the *Vignettes in Patient Safety* series, we continually emphasize the importance of teams, communication, and the presence of dedicated champions critical to promoting a culture of safety throughout our institutions. In an attempt to present the reader with practical information and actionable knowledge, we also focus on clinically relevant elements of implementing effective team approach including strong leadership and communication and describing key aspects of a robust organizational culture of safety. This volume of *The Vignettes* will be specifically devoted to the importance of team communication and coordination as inextricable elements of a safe and efficient modern healthcare environment.

2. Patient safety and teamwork

Patient safety can be defined as a discipline or characteristic of a healthcare system that focuses on the application of safety science methodologies to minimize the incidence and impact of adverse events, with the ultimate goal of creating a trustworthy and highly reliable healthcare delivery environment [9]. The critical importance of patient safety has been well established across the full spectrum of modern healthcare settings, including the more recent introduction of patient-centered care and quality-based reimbursement paradigms [3, 27, 28]. As the care delivery paradigm continues to evolve, we must strive to learn, grow, and make sustained improvements across all domains of practice, from the most mundane to the most complex ones. Because the focus on patient safety has its genesis in the combined desire and duty to "do the right thing" in conjunction with the realization that there is an unacceptably high prevalence of avoidable adverse events, we must all join forces and make the effort to meaningfully contribute at the personal, team, and institutional levels [3, 29, 30].

For any meaningful change in practice (and thus organizational culture) to occur, a shift in mindset must be embraced at both individual and institutional levels [31]. In the past, there was a widely held belief that "well-trained and conscientious" providers generally do not commit errors and that most errors occurred because of "carelessness and incompetence" [9, 32]. Consequently, punitive approaches to error identification and correction prevailed, creating an environment of "fear, secrecy, and nondisclosure" [4, 9]. The resultant "culture of blame" gradually gave way to a more in-depth understanding of medical errors, with increasing realization that only a minority of errors are clearly attributable to a single individual or factor [3–5].

Research into human factors provides evidence that in great majority of cases it is not "the individual" who is to be blamed, but rather the error results from imperfections within the organization's systems, training, equipment, and/or management [9, 33, 34]. This sparked a transition toward system-based thinking and adoption of error management, an effective method used in aviation, into health care as a way of introducing a more sustainable paradigm change [3, 4, 35]. Subsequent identification and improved understanding of various "failure modes" such as "latent failures" that may be "hidden" within an otherwise highly efficient and safe environment [35] gave us further insight into phenomena "we did not know that we did not know." Among various areas of scrutiny, it became apparent that the largest number of opportunities for improvement resided within the general domains of "team communication" and "team coordination" [36, 37].

For the purposes of our discussion, a team is described as one or more individuals working together toward a specific, shared aim [21]. This highlights the importance of any verbal or written communication between providers and caretakers where at least two individuals are involved, regardless of how trivial such communication may seem at the time. Also, integral to the team context, each individual has a special role to play within their own area of knowledge and expertise [21]. Inherent to effective teamwork, individuals should be willing to share their resources, communicate and coordinate closely in order to provide the very best care and experience for the patient from every conceivable standpoint, including clinical outcomes, quality, and safety [21]. Of note, the above statements describe nearly every team-based microsystem within the modern healthcare construct.

It seems that coordination and collaboration should be occurring intuitively in a high-performing medical system. However, breakdowns in communication, an essential element in care coordination, were found by The Joint Commission to contribute to 70% of adverse events [32], with a large proportion of these events resulting in mortality [38]. Teamwork is paramount not only to the development of a safe patient environment but also to improved patient outcomes, enhanced quality of care, and greater provider satisfaction [32, 38]. Inefficient team structure and poor functioning have been implicated in inferior quality of care and worse safety performance [21]. Given the complexities of modern healthcare environment, including the diversity of roles and increasing degree of specialization within essentially every area of practice/expertise, the above considerations become even more urgent [39, 40]. Consequently, the concurrent presence of well-choreographed coordination, communication, and teamwork is no longer optional in the interprofessional environment of modern health care, at all levels of every organization [40].

3. Effective team communication and coordination: "Together Everyone Achieves More"

When people work together toward a common goal, remarkable achievements are possible. There are, however, important team-specific considerations. With the growth of team size and complexity, so does the potential for errors. Essential to reducing the number of errors is the presence of robust, often redundant feedback mechanisms [4, 41, 42]. In addition to improving safety and effectiveness of teams, properly structured teamwork may also help improve staff well-being and morale [21]. Consequently, targeted restructuring of microsystems and processes toward a more team-based approach can bring about important benefits and synergies [21]. Finally, thoughtful implementation of interventions that foster shared decision-making, planning, and problem-solving can also be effective in improving both clinical outcomes and patient safety [32].

Although healthcare professionals tend to be aware of the importance of teamwork, communication, and coordination, this awareness does not universally translate into appropriate or optimal behavioral manifestations [21]. As a result, breakdowns in teamwork—rather than lack of knowledge or clinical skills—continue to contribute to a significant proportion of adverse healthcare events [21]. Thus, the importance of working effectively within a complex team-based environment cannot be overstated, with evidence from one observational study conducted in the pediatric surgical setting demonstrating that "…effective teamwork was associated with fewer minor problems per operation, higher intraoperative performance and shorter operating times" [21]. If coordinated teamwork and communication are so important to ensuring patient safety, what are some of the more common failure modes and more importantly the associated barriers?

4. Barriers to communication, collaboration, and care coordination

Without effective communication between care providers, healthcare teams, and their patients, considerations given to safety measures are more likely to be insufficient, often

creating adverse outcomes in both unexpected and unpredictable ways [6]. There are several important barriers to collaboration, coordination, and communication, as outlined in the current section. Within the highly complex and dynamic modern healthcare organizations, each individual must organize and coordinate the necessary care in accordance to their unique, specialized, and highly valued training, expertise, and patterns of practice [43]. Consequently, this inherent systemic heterogeneity is a strong determinant of breakdowns in team function, beginning with differences in the level and type of training and ending with vast and often non-overlapping skill sets that are neither universally understood nor well communicated across the involved group. For example, nurses and doctors are trained to communicate very differently. Nurses tend to be more detailed and emphasize gathering, collecting, and communicating highly granular facts [44, 45]. On the other hand, physicians are taught to interpret these facts, make a diagnosis, and communicate their conclusions without necessarily relating all of the details that led to the formulation of associated clinical plans [44, 45]. An important consideration in this general context is the potential difference in perceptions related to communication among different group members [45, 46].

Another barrier to effective collaboration and communication is the persistence of hierarchical systems that place various team members at different levels of the team decision-making process, often based on specialty, expertise, politics, and other arbitrary factors [47]. Instead, approaches that embrace the fact that each individual brings a unique perspective and breadth of knowledge to the team should be encouraged and appear to be of great importance to improving patient outcomes and promoting a culture of safety [3, 4]. Inviting input and open discourse from the entire team can both improve the delivery of care and reduce the possibility of critical safety steps being missed. Mutual respect, appreciation, acknowledgement, and constructive reflection within the team must be encouraged and should constitute the foundation of sound organizational culture [48, 49]. Great emphasis also needs to be placed on valuing different perspectives, regardless of how divergent individual views may be, through respectful discourse and acknowledgment of key differences. In health care, each member of the team inherently believes that he or she is doing what is truly best for the patient. Respect for differing opinions is an important part of avoiding unnecessary "ego contests" that may be detrimental not only to the team dynamic but also to patient safety and outcomes.

There are several other potential barriers to communication and collaboration that are worth mentioning. Intimidation and disruptive behavior both can interfere with effective coordination of care. There should be "zero tolerance" for these phenomena because they can lead to the development of a hostile work environment and result in fear of communicating or reporting medical errors (e.g., unwillingness to speak up). Any evidence of intimidation or retribution should be a basis for disciplinary action, up to and including termination of employment. Disruptive behavior has been associated with preventable adverse events and adverse patient outcomes [50], and it can distract team members from focusing on effective communication and the performance of essential functions of their job [32, 51]. In summary, it is critical that these two major, yet uncomfortably under-recognized barriers to effective team collaboration and communication be identified and aggressively addressed at all levels of healthcare institutions.

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5. Overcoming barriers to communication, collaboration, and coordination of care

Much like effective communication, highly structured coordination is important to ensuring that established patient safety mechanisms continue to function properly. All team members should be "on the same page" in terms of their understanding of the group's function and purpose. Yet, as we discussed in previous sections, this can be challenging at times due to the abovementioned barriers. In this context, resistance to change may be responsible for the reluctance of both people and institutions to embrace better ways of doing things. Such resistance can persist within clearly dysfunctional teams despite unequivocal evidence demonstrating successful culture shift within other high-stakes industries such as aviation and banking [52]. Identification of problems in the current patient safety paradigm must begin with clear and unambiguous definitions. For example, there are different categories of suboptimal communication, including poorly timed, misdirected, incomplete or inaccurate information exchanges, as well as ineffective communication due to lack of follow-through [32]. The latter type is thought to be a leading cause of medical error and patient harm in the acute care setting [32]. As outlined throughout the *Vignettes in Patient Safety* cycle, the goal of effective communication should be to ensure that everyone's understanding of the situation at hand is clear and that all participants are communicating in an organized, methodical fashion. This can be accomplished by standardizing the approaches which we use to relate critical information within and between healthcare teams. Thus, efforts to disseminate universally agreed upon clinical communication tools across our organizations will be of pivotal importance (as well as the efforts to educate all stakeholders accordingly). Multidisciplinary rounds are a great platform for coordinating care, ensuring that "everyone is on the same page," fostering open communication and collaboration among different disciplines, and providing a troubleshooting forum for any problems that may arise [53].

Standardized team training is important to ensuring a sustained ability of our institutions to function at high-performance levels. Such training programs increasingly take into consideration the human performance science and are designed to mitigate errors and patterns of errors that commonly occur when human beings operate under high levels of stress [54]. Targeted training in leadership, decision-making, briefings, and cross-checking, as well as monitoring, reviewing, and modifying plans under stress, is integrated into the curricula [54]. Simulation constitutes another important aspect of team training. It provides an opportunity to practice various techniques and scenarios in a controlled, highly structured environment. It facilitates real-time feedback and thus creates an opportunity to proactively improve team attitudes and behaviors.

6. The importance of organizational culture and leadership

Good leadership is paramount to organizational success. Rapidly evolving modern healthcare environment requires leaders to be highly flexible and well-versed in change management skills, with focus on the delivery of high-quality, safe patient care. The establishment

of a culture of safety is critical to the leadership's ability to bring about institutional change, enhanced quality of care, and ultimately better patient outcomes [3, 4, 8]. Moreover, healthcare leaders must make patient safety a top organizational priority [8], and through such prioritization, a positive "trickle-down" effect will help gradually facilitate the desired institutional transformation. High-reliability organizations (HRO) can be defined as being able to successfully implement changes required to make them more efficient, safer, and cost-effective. This, in turn, exemplifies the "big picture" view of value-driven health care.

Organizational culture defines the parameters of the work environment. For each healthcare institution and system, poorly managed variability within and between individuals, teams, departments, etc. has the potential to create a dangerous mix of both active and latent systemic contributors to patient safety events. In order to reconfigure the culture of an organization, not only does it takes broad-based staff buy-in but also effective leaders who are able to inspire individuals and teams to pursue both personal and operational excellence.

7. Synthesis and conclusions

Patient safety is a dynamically evolving discipline, with many challenges and opportunities along the journey to operational excellence, just culture, and sustained "zero defect" performance record. The overarching theme of this chapter and this book is that effective teamwork requires the investment of significant amounts of time, effort, and energy by all stakeholders. Modern healthcare requires safe and efficient teamwork, which in turn requires intensive training and education. Most people find it challenging to work with large, complex teams and are often unaware of the various barriers to effective communication and coordination required to thrive in such environment. The creation of team-based healthcare systems must begin with breaking "old habits" and proactive advocacy for the adoption of modern, evidence-based approaches. Beginning with institutional leadership's vision and strategy, trust and respect are fostered to help encourage positive behaviors and implement just culture. The ultimate goal of "zero harm" must always remain the top priority within the safer and more efficient healthcare systems of tomorrow.

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