In 1999, the Institute of Medicine (IOM), a not-for-profit organization sponsored by the United States National Academy of Sciences, released *To Err Is Human* (published 2000). This report revealed the gap that exists between the current status of American health care and the quality of health care that the panel believed Americans were entitled to receive. Recommendations for sweeping changes in our systems followed in the 2001 *Crossing the Quality Chasm: A New Health System for the 21st Century*. Subsequently, the 2003 IOM report, *Health Professions Education: A Bridge to Quality*, called for a radical redesign of health professions education to achieve six core competencies described as essential to improve 21st century health care: patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics. The attention from the series of IOM reports over the past 10 years confirms that quality and safety are the leading contemporary issues in health care, contributing to costs and poor outcomes. Current health care reform in the United States is based on improving quality outcomes; health care mistakes cost the system between 17 and 29 billion dollars each year. Beyond the economic factors, the impact on providers is equally critical, and poor quality leads to erosion of trust with consumers.

Since the Institute of Medicine series of reports focused attention on the issues in health care quality and safety, responses have included regulatory changes, new roles and responsibilities for health care professionals, and calls for a new educational paradigm. Still, many gaps continue (Balik & Dopkiss, 2010; Cronenwett, 2012; Leape & Berwick, 2005; Wachter, 2004; Wachter, 2010). In spite of declaring education as the bridge to quality, health professions education continues to undergo transformation to include preparation in the knowledge, skills, and attitudes (KSAs) needed to improve our systems.
What are issues in redesigning our systems of care? What do health professionals need to know? What are the organizational characteristics for a culture of quality and safety? This chapter will examine the impact of the driving forces for the changes needed, application of quality and safety science to reframe organizational cultures for quality improvement and safety, and how these reframe the education needs for nurses. The framework of the new paradigm shifts from individual performance to system initiatives and redesigns to monitor outcomes of care, and situates the patient as a full partner in care.

The compelling case for quality and safety

The data revealed in the IOM reports that comprise the Quality Chasm series sent shock waves throughout the industry and grabbed the attention of consumers (Textbox 1.1). The evidence reported in this series identified the imperative for changing mindsets to include quality and safety as part of the everyday work of nurses and other health professionals. Prior to release of the first report in 1999, the issues were wrapped in silence; without a reporting system there was not an evidence base to establish the scope or depth of system issues that contributed to poor quality and safety. There was no national tracking system and little pressure to improve quality and safety outcomes from regulators, health care purchasers, or third-party payers. Although the United States spends more than any other country on health care, the system has significant shortcomings, particularly in efficiency, quality, access, safety, and affordability (Davis, Schoen, & Stremikis, 2010). The fragmentation and decentralization of the health care system is a barrier to quality and safety; for example, patients may see multiple providers who may not be able to share critical patient information due to a lack of technology infrastructure or have a feeling of ownership that precludes sharing and consultation. While most data are based on acute care in patient settings, errors can occur in physician offices, out-patient settings, nursing homes, patient homes, and so forth. An annotation of the reports with their recommendations is in Textbox 1.1.

The data are startling, particularly related to medication errors, one of the most common according to Identifying and Preventing Medication Errors (Aspen, Walcott, Bootman, & Cronenwett, 2007). Medication errors particularly impact nurses. Nurses have the primary responsibility for medication administration with patients in a complex environment. Medication errors account for over 7,000 deaths annually. On average, in-patients may experience at least one medication error per day. At least 1.5 million preventable adverse drug events occur each year. Almost 2% of admissions experience a preventable adverse drug event, which increases hospital costs by $4,700 per admission or about $2.8 million annually for a 700-bed hospital; multiplied, this would account for $2 billion nationally.

The costs associated with quality and safety are complex; accounting includes lost income, health care costs, and other expenses. The national cost...
Textbox 1.1 Summary: The Institute of Medicine (IOM) Quality Chasm Series (www.iom.edu)

  This first IOM report presented the first aggregate data on the depth and breadth of quality and safety issues in U.S. hospitals. Analysis of outcomes from hospitals in Colorado and Utah concluded that 44,000 people die each year as a result of medical errors, and that in New York hospitals, the number is 98,000. Even using the lower number, more people die annually from medical error than from motor vehicle accidents, breast cancer, or AIDS. Medical errors are the leading cause of unexpected deaths in health care settings. Communication is the root cause of 65% of sentinel events. The report presents a strategy for reducing preventable medical errors with a goal of a 50% reduction over five years.

- **Crossing the Quality Chasm: A New Health System for the 21st Century (2001)**
  The IOM issued a call for sweeping reform of the American health care system. A set of performance expectations for 21st century health care seeks to assure that patient care is Safe, Timely, Effective, Efficient, Equitable, and Patient centered (STEEEP). These aims provide the measures of quality to align incentives for payment and accountability based on quality improvements. The report includes causes of quality gaps and barriers to improve care. Health care organizations are analyzed as complex systems with recommendations for how system approaches can help implement change.

- **Health Professions Education: A Bridge to Quality (2003)**
  Education is declared as the bridge to quality based on five competencies identified as essential for health professionals of the 21st century: patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement (and safety), and informatics. Recommendations include developing a common language to use across disciplines, integrate learning experiences, develop evidence-based curricula and teaching approaches, initiate faculty development to model the core competencies, and implement plans to monitor continued proficiency in the competencies.

- **Keeping Patients Safe: Transforming the Work Environment of Nurses (2004)**
  The 2004 IOM report links nurses and their work environment with patient safety and quality of care. The findings of this report have helped shape the role of nurses in patient care quality and safety efforts. Key recommendations are creating a satisfying and rewarding work environment for nurses, providing adequate nurse staffing,
focusing on patient safety at the level of organizational governing boards, incorporating evidence-based management in the management of nursing services, building trust between nurses and organizational leaders, giving nurses a voice in patient care delivery through effective nursing leadership and participation in executive decision making, providing organizational support to promote learning for both new and experienced nurses, promoting interdisciplinary collaboration, and designing work environments and culture that promote patient safety.

- **Identifying and Preventing Medication Errors (2006)**

  Medication errors make up the largest category of error with as many as 3%-4% of patients experiencing a serious medical error while hospitalized. This report presents a national agenda for reducing medication errors and the huge costs associated with medication errors. Changes across the health care industry require collaboration from doctors, nurses, pharmacists, the Food and Drug Administration and other government agencies, hospitals and other health care organizations, and patients.

  For preventable adverse events ranges between $17 billion and $29 billion; additional health care accounts for more than half these totals because tests and treatments may have to be repeated or others added, and patients may need to extend their hospital stay. In addition to these costs, there are immeasurable ones: patients may suffer or be inconvenienced, have lower satisfaction with care, and lose trust in the system. Most of what is known about the financial and other burdens are hospital related. Data are just beginning to emerge on costs associated with quality and safety across the continuum of care, including ambulatory, home health care, and skilled care.

  Health care workers are also affected by the quality of care in the systems in which they work; they may experience loss of morale and lower satisfaction when they are not able to provide the best care possible. *Keeping Patients Safe: Transforming the Work Environment of Nurses* (Page, 2004) is a comprehensive analysis of the factors influencing nurses’ work. Health care is value based; as professionals we pledge, first, to do no harm. Quality is an essential value. Professionals take pride in doing the right thing, but quality is more than will; it is a mindset of inquiry and the capacity to use appropriate tools to improve systems in which we work. Quality improvement intersects all areas of health care from economic issues to the moral basis undergirding quality for doing our best. It builds on the shared values and moral commitment common to all health professionals. Health professionals have the motivation and ability to improve systems if they have the necessary education and training and work in organizations where quality improvement is integrated as part of daily work.

  Consumers have helped motivate changes in health care. Patients and families who experienced adverse events have called for reform in how health
care systems identify, investigate, report, and share information related to errors. Patients and families who experience health care mistakes leverage their influence to prevent similar events happening to others. National organizations such as the National Patient Safety Foundation (www.npsf.org) serve both consumers as well as health professionals. Numerous nonprofit organizations created in response to adverse events focus attention on particular care delivery issues as well as broader issues, establishing patient advocacy with an increasing influence in health care. Many patients or their family members now serve on hospital boards or consumer panels, share their stories in learning situations, and bring growing pressures to have systematic participation in all areas of health care.

The health care industry is applying lessons from other industries, particularly those known as high-reliability organizations (www.ahrq.gov). A key difference is that most other industries that have had dramatic improvements in quality and safety were supported by a designated agency that sets and communicates goals, brings visibility, and systematically collects and analyzes error reports for root cause analysis; however, health care lacks a single designated agency, as responsibilities are spread among various groups. Although numerous agencies developed in the decade following the publication of *To Err Is Human* was first published, none have the purpose of collecting safety or quality data for systematic analysis with broad dissemination to assure that best practice and safety alerts are implemented across all settings. Schumann (2012) offers a summary of these federal, regulatory, professional, and consumer agencies and organizations.

With lack of information on how and what errors occur and systematic dissemination of the information we do have, health care has lagged behind other high-risk industries in establishing a safety focus. Aviation has focused on safety for more than 50 years with significant reduction in fatalities. Health care has adopted and adapted principles and approaches from aviation as well as other high-reliability organizations that have similar characteristics, such as intermittent, intense tasks that demand exacting responses. By systematically collecting data on sentinel events for review through standardized processes, these industries have been able to monitor and improve safety in their systems.

Health care delivery organizations have a significant role in safety. Systems are a set of interdependent components that interact to achieve a common goal. For example, a hospital is a system composed of service lines, nursing care units, ancillary care departments, out-patient care clinics, and so forth. The way in which these separate but united system components interact and work together is a significant factor in delivering high-quality, safe care. Organizational leadership helps align quality and safety goals with mission and vision so that it is practiced consistently throughout all areas and levels of the system (Triolo, 2012). High-reliability organizations focus on safety; it is pervasive in their culture to be mindful of where the next error may occur to increase vigilance, establish check lists, or implement other preventions (Barnsteiner, 2012).
New meanings for familiar terms: the science of quality and safety

Quality and safety are intertwined, complex concepts with multiple dimensions. Lack of a comprehensive understanding of the full scope of these terms is but one barrier for implementing quality and safety strategies. It is difficult to reshape the mental model of these broad terms held by health care workers. The historic definitions and overuse of the terms are part of the change in mindset for adopting new KSAs derived from the science of quality and safety.

Though interrelated, quality and safety comprise different concepts. Quality improvement uses data to monitor outcomes of care processes that help guide improvement methods to design and test changes in the system to continuously improve outcomes (Compas, Hopkins, & Townsley, 2008; Johnson, 2012). The goal of quality is to reach for the best practice, and the goal is determined by measuring the reality of the care delivered compared with benchmarks or the ideal. Continuous quality monitoring is the mechanism by which the health care system can be transformed through the collaboration of health care professionals, patients and their families, researchers, payers, planners, and educators. All are working toward a triangle of improvements that lead to better patient outcomes (health), better system performance (care), and better professional development (education) (Bataldan & Davidoff, 2007). All health professionals must know how to assess the scientific evidence to determine what constitutes good care, identify gaps between good care and care delivered in their setting, and implement actions to close gaps (Sherwood & Jones, 2011).

Safety science embraces an organizational framework to minimize risk of harm to patients and providers through both system effectiveness and individual performance by applying human factors as discussed more fully by Barnsteiner in another chapter (2012) and Sammer and colleagues (2010). Safety science builds on Reason's model of errors (2000). Error is the failure of a planned action to be completed as intended or the use of an incorrect plan to achieve an aim. Reason identified two kinds of failure that constitute error:

1. Error of execution in which the correct action does not proceed as intended
2. Error of planning in which the original intended action is not correct.

An adverse event is the injury that results from care delivered or from care management, not from the underlying patient condition or the reason the patient was seeking care. Preventable adverse events are those attributed to error. There are also various types of errors. Diagnostic errors delay diagnosis, prevent use of appropriate tests, or result in failure to act. Treatment errors can occur while administering treatment, include errors in administering medication, lead to avoidable delay in treatment or response to treatment, or contribute to inappropriate care. Other examples are failure to provide prophylactic treatment, inadequate monitoring or follow-up, failure to communicate, equipment malfunction, or other system failure.
With multiple components in defining errors, it is a challenge to develop a unified reporting system that can be used across settings or nationally, in the same way that the aviation industry aggregates reports of airline events. Inconsistent nomenclature of a long list of terms adds to the difficulty of consistently reporting the same events in a central system. Through implementation of a culture of safety, organizations implement processes through risk management to collect error reports for root cause analysis. Carefully detailing all steps and decisions leading to an error or near miss can formulate a system redesign of processes that lessens the chance of future occurrence. The focus is on improving the system to prevent future errors rather than blaming individuals by acknowledging the influence of complex systems and human factors that influence safety. In a just culture, the focus is to determine what went wrong rather than identifying exactly who committed the error to establish blame and punishment. Just culture establishes an environment in which errors and near misses are acknowledged, reported, and analyzed for ways to improve the system. Accountability remains a critical aspect of a culture of safety; recognizing and acknowledging one’s actions is a trademark of professional behavior.

Nurses are in the forefront of examining the work environment to identify where quality and safety are issues and how it is influenced by human factors, the interrelationship between people, technology, and the environment in which they work (Page, 2004). Human factors consider the ability or inability to perform exacting tasks while attending to multiple things at once. For system improvements, organizational leadership must give attention to human factors such as managing workload fluctuations, seeking strategies to minimize interruptions in work, and attending to communication and care coordination across disciplines. Effective care coordination includes checklists and other strategies to assure safe handoffs between providers and settings. Nurses are challenged by other human factors that impact quality and safety, such as multitasking, distractions, fatigue, task fixation that limits environmental scanning, and hierarchy and authority gradients. Staffing, interpersonal relationships, and the lack of education on quality and safety are among the multiple human factors that impact quality and safety.

Assuring quality and safety involves more than individual accountability because it requires considering how system designs can prevent error as part of the continuous cycle of improvements (Hughes, 2008). Focusing on safety helps eliminate discrepancies in care that are the result of provider actions in delivering care, that is, error prevention. Quality improvement is a critical aspect of safety—it requires assessing safety issues for prevalence, comparisons across areas, and using benchmark data to help clinicians improve their own practice as well as the system. When principles and strategies from quality improvement are applied, the rate of medication errors occurring in a given setting can be measured and compared with a peer unit or industry benchmark. Root cause analysis can determine reasons for errors in medication administration to change the system to prevent or lessen the possibility of errors occurring.
Many of the improvements in our health care systems are the result of regulatory mandates from groups such as the Joint Commission (www.jointcommission.org), which grants institutional accreditation and opens the possibility of different aspects of federal funding (Wachter, 2004; Wachter, 2010). The Joint Commission also established the National Patient Safety Goals, updated annually. The goals provide guidance in key areas of high vulnerability and share evidence for solutions by emphasizing a systematic process for quality improvement, patient safety, and outcomes monitoring. The Joint Commission also established regulations to eliminate disruptive behavior among health care professionals and required organizations to have a code of conduct to define acceptable and inappropriate behavior as well as a process for managing such behaviors.

The Institute for Healthcare Improvement (IHI; www.ihi.org) has been a strong advocate for quality and safety innovations, bringing collaboration among all professions. The IHI’s 100,000 and 5 Million Lives campaigns are but two examples of focused collective efforts for improving outcomes. Schumann (2012) provides a comprehensive description of national groups and their goals of quality and safety.

Professional nursing organizations have responded to the imperative to improve quality and safety in health care systems. The American Nurses Association, following a long history of promoting quality assurance, and the International Council of Nurses (2002) developed a new framework on quality improvement distributed nationally and globally (Doran, 2010). The Magnet recognition program recognizes organizational quality in nursing care delivery (Triolo, 2012) with standards based on continuous quality improvement. The standards reinforce conditions in the organization and practice environment that support and facilitate nursing excellence. Recognition is linked to improvement in nurse recruitment, retention, quality outcomes, and patient satisfaction scores. The American Nurses Association also established the National Database of Nursing Quality Indicators in 1998, which maintains data on sustained improvement in a designated nursing-sensitive indicator such as staffing, hospital-acquired pressure ulcers, falls and prevention of injury from falls, staff satisfaction, and pediatric and psychiatric mental health data (Montalvo & Dunton, 2007; Schumann, 2012).

Federal programs in Medicare and Medicaid have helped define nurses’ roles and revised the payment structure for health care. Medicare and Medicaid subsequently developed programs to reduce hospital-acquired conditions, or those conditions that were not present at the time of a patient’s hospital admission (Bodrock & Mion, 2008; Centers for Medicare and Medicaid Services, 2008). Hospitals are no longer reimbursed for 10 preventable hospital-acquired conditions, many of which were part of nursing care interventions (Hines & Yu, 2009). Other third-party payers and large employers have “pay for performance” plans in which health systems receive additional economic incentives when specific quality targets are met, many of which are nurse driven.
A progress report: where are we now more than a decade later?

The IOM (2001) issued four recommendations to change the system:

- Create a national focus through leadership, research, tool kits, and protocols to enhance knowledge about safety.
- Identify and learn from errors by establishing a vigorous error reporting system to assure a safer health care system.
- Increase standards and expectations for safety improvements through oversight groups, professional organizations, and health care purchasers.
- Improve the safety system within health care organizations to assure care improves.

There are progress reports 5 years and 10 years since the release of *To Err Is Human* (IOM, 2000) that examine progress based on these goals. Longo, Hewett, Ge, and Schubert (2005) used a 91-item survey to assess changes over time between two survey points in 2002 ($N = 126$) and 2004 ($N = 128$) in hospitals in Missouri and Utah that had collaborated on a patient safety project funded by the Agency for Healthcare Research and Quality (AHRQ). Assessment included seven variables: computerized physician order entry systems and test results, and assessments of safety procedures; specific safety policies; use of data in patient safety programs; drug handling procedures; manner of handling adverse events reporting; prevention policies; and root cause analysis. At the five-year mark, the report concludes that hospitals are not satisfactorily meeting the IOM recommendations, progress is slow, and technology applications that could improve safety lag.

Another study by Wachter (2004) measured five areas of patient safety five years after the First IOM report and also found progress insufficient. Stronger regulation stimulated early improvements, but that impact has slowed. While there was some progress by 2004 in information technology applications and workforce organization and training, there was little demonstrable impact from error reporting systems and only small improvement in accountability, leading Wachter to declare that at the five-year mark from this galvanizing report, “we are at the end of the beginning,” indicating there remains much work ahead.

In 2010 Wachter added another analysis to assess 10-year progress following publication of *To Err Is Human* (2000). Using a report card grading system from A (highest) to D (lowest), he assessed 10 key patient safety domains based on 1999-2004 and 2004-2009. Overall, Wachter graded the progress in safety as a B−, a modest improvement from a C+ based on data in the 2004 report. Leadership engagement from provider organizations and reporting systems were gauged as having made the most progress. There is a stronger business case for hospitals to concentrate on their safety efforts due to stronger accreditation standards and error reporting requirements. Interventions across national and international organizations receive the
highest grade, including major campaigns from groups such as IHI, AHRO, the Joint Commission, the National Quality Forum, and the World Health Organization. Few hospitals have moved to fully implement information technology applications. More systems are implementing a safety culture that balances no blame with accountability. Research is advancing in spite of inadequate funding. Progress in workforce and training is limited as few organizations have robust teamwork or culture change, but some impact has been felt from reducing residents’ duty hours and easing of the nursing shortage. Patient engagement and involvement remains small, with more progress related to disclosure policies and procedures, also addressed by Balik and Dopkiss (2010). Payment system intervention is uncertain, as pay for performance is only beginning. Wachter concludes that our limited ability to measure safety outcomes is a major barrier to progress.

Progress is reported in several areas of nursing practice. Many nursing organizations have identified and developed programs to improve quality and safety. For example, the American Association of Critical-Care Nurses (2010) developed multiple approaches including a program on healthy work environments focused on teamwork and collaboration. Competencies were developed for prelicensure and graduate nurses by the Quality and Safety Education for Nurses (QSEN) project (Cronenwett, 2012). The Nursing Alliance for Quality Care (Schumann, 2012) was formed to bring one organized nursing voice to ensure that (a) patients receive the right care at the right time by the right professional; (b) nurses actively advocate and are accountable for consumer-centered, high-quality health care; and (c) policymakers recognize the contributions of nurses in advancing consumer-centered, high-quality health care.

Strategies to change mindsets: nurses’ roles in improving quality and safety

While quality and safety improvements are goals for practitioners in all levels and areas of health care, nurses have particular roles. The IOM website has the following quote from the 2010 report *The Future of Nursing: Leading Change, Advancing Health*:

Overcoming challenges in nursing is essential to overcoming the challenges in the health care system as a whole. Nurses are the largest segment of the health care workforce, and their skills and availability can directly affect quality, safety, and efficiency. Most nurses work in hospitals or other acute settings, where they are patients’ primary, professional caregivers and the individuals most likely to intercept medical errors. However, because hospital systems and acute care settings are often complex and chaotic, many nurses spend unnecessary time hunting for supplies, filling out paperwork, and coordinating staff time and patient care, reducing the time they are able to spend with patients and delivering care.
Considering the scope of the recommendations and the limited progress, what is the nursing response to the IOM Quality Chasm series? Wachter’s (2010) review of progress to achieve the IOM recommendations cites moderate progress in addressing workforce and training issues, reporting systems, and research. What does it mean for nursing? Three primary goals can guide nurses in leading change. First, all nurses must develop a mindset of questioning to constantly improve their work and increase their capacity to recognize and acknowledge quality and safety issues in their own work and in the systems in which they work. Second, educational programs must be transformed to address quality and safety competencies to help learners with changes in KSAs. Third, advancing scholarship to determine best practices in education, practice, and systems applications will establish an evidence base to implement effective approaches to transform health care.

Change mindset

Increasing nurses’ awareness of quality and safety developed within new science applications will help nurses recognize quality and safety concerns in their practice and in their settings. Many remain largely unaware of the scope of the problems and have not been taught how to identify, report, and systematically analyze a near-miss or sentinel event or lead a quality improvement team (Chenot & Daniel, 2010). A mindset of inquiry, of asking questions can lead to improvements in the systems. Day and Smith (2007) demonstrate inquiry-based clinical learning by focusing on patient-centered care to ask, “What is the most important thing to do right now for this patient?” Reflection is another learning approach that helps with change; reflection asks questions; questions are the first step in change (Horton-Deutsch & Sherwood, 2008). Asking questions opens the way to innovative approaches, application of evidence-based practice standards, and various methods of quality improvement. Learning the concepts of new safety science refocuses how errors are reported. Rather than using incident reports to establish blame on an individual provider, organizations committed to quality and safety create a culture in which nurses and other professionals are empowered to disclose near misses and mistakes through a reporting system, and to identify areas in which outcomes do not match benchmarks.

It is a challenge, however, to build the awareness that empowers nurses to make the first step and acknowledge a near miss or mistake. Nurses then need to know what to report, and how, as well as how to follow the steps in the organization’s safety plan. In a just culture, there is a shift from establishing blame and punishing someone for a mistake to a systematic analysis for the purpose of learning and change. All providers who had any part in the event come together, led by trained professionals, to establish the chain of actions, decisions, and circumstances that may have contributed to an error so there is the opportunity to learn and develop system changes to prevent future occurrences. Patients and their families should be informed and included in the process to achieve transparency in the system, to have full disclosure of
the event. Quality improvement teams can collect information to monitor occurrences of the problem in other parts of the system, compare data, and initiate strategies to eliminate variances. Asking questions can lead to conducting an annual safety culture survey to identify areas for workplace improvement and priorities for improving quality, or it can lead to using scorecards to collect data on services to identify areas for improvement. In academic settings, educators establish a culture of safety and quality for their own educational processes such as a reporting system of learner near misses and errors to assess processes and increase safety awareness.

Transform education to integrate competencies

The second focus area is transforming nursing education to integrate the competencies based on the KSAs developed from the Quality and Safety Education for Nurses (QSEN) project. The project goal for the QSEN project in the United States (www.qsen.org) is to (a) change the mindset of nurses to a practice based on inquiry in which questions are raised about the whys of nursing care, (b) develop and use evidence-based standards and interventions, and (c) investigate outcomes and critical incidents from a system perspective (Cronenwett, 2012; Cronenwett et al., 2007; Cronenwett et al., 2009; Sherwood, 2012). These competency statements can guide educators in developing educational programs that help learners achieve the KSAs necessary to work in redesigned health care settings built around quality and safety. The IOM (Greiner & Knebel, 2003) identified five competencies as essential for all health professionals if we are to improve health care with quality and safety combined; subsequent definitions list quality improvement and safety separately based on the knowledge base for each. The six competencies are not isolated concepts but are interrelated and apply across all health disciplines. The goal of the competencies is to enable health professionals to deliver patient-centered care, work as part of interdisciplinary teams, practice evidence-based health care, implement quality improvement measures and strategies, and use information technology (Cronenwett et al., 2007; Cronenwett et al., 2009; Finkelman & Kenner, 2009; Greiner & Knebel, 2003). Brief descriptions of the competencies are in Textbox 1.2, complete definitions and the KSAs are in Appendixes A and B, and each competency is discussed in separate chapters in Section 2 of this book.

Education transformation cannot happen in isolation. The IOM recommendations demand interprofessional learning experiences for both academic and clinical learning situations. Nursing education most often occurs in silos— independent departments—with few shared learning opportunities between the many health disciplines with which nurses are expected to work. Knowing what each discipline contributes is crucial to high performance and flexible team leadership that works through authority gradients so all team members have equal opportunity to share information in establishing patient care goals (Disch, 2012a). These educational changes must happen in all settings to prepare nurses in practice as well as those in academic programs.
Textbox 1.2 Descriptions of six competencies to improve quality and safety*

- **Patient-centered care**
  In patient-centered care, care decisions are based on knowledge of patient values, beliefs, and preferences so that patients and their families are treated with respect and honor, included as partners in care, and treated as safety allies (Walton & Barnsteiner, 2012). Their familiarity with their treatment plan makes them an important part of the team by helping alert clinicians when care is not according to their usual routine, and thus helps prevent errors.

- **Teamwork and collaboration**
  How well health care professionals work together accounts for as much as 70% of health care errors (Institute of Medicine, 2000), yet nurses and physicians have few educational experiences together. Coordinating complex care requires cross-disciplinary communication, knowing scope of responsibility, and organizational support for speaking up when safety is compromised (Disch, 2012b). Nurses need skills in problem solving, conflict resolution, and negotiation to be able to coordinate care across interprofessional teams (Moore, Dolansky, & Singh, 2012). A health professional who develops emotional intelligence can apply his or her personal strengths to foster effective team functioning. Flexible leadership, standardized communication, mutual support, and constant environmental scans contribute to effective team leadership (Disch, 2012a).

- **Evidence-based practice**
  Patient care should be based on evidence-based practice standards, not tradition or trial and error (Tracey & Barnsteiner, 2012). Nurses who practice from a spirit of inquiry with reflection on the care delivered will apply informatics skills to seek current evidence to determine best practices and clarify care decisions. Patient-centered care considers patient preferences, values, and beliefs within an evidence-based approach. Nurses use evidence-based standards and quality improvement tools to measure how care in their own setting compares with benchmark data to determine areas to improve.

- **Quality improvement**
  The spirit of inquiry promotes a practice attitude of continuously improving care every day with every patient. Quality improvement is an approach to practice that measures variance in ideal and actual care and implements strategies to close the gap (Johnson, 2012). Nurses use quality improvement tools, informatics to seek evidence and measure care outcomes, and benchmark data to assess current practice. The ethical responsibility of quality improvement includes commitment to provide the best known care as well as the ethical conduct of the process itself.

(Continued)
Educators have help available in making the transition. To assist educator development, the American Association of Colleges of Nursing has offered a series of QSEN faculty development workshops, and the QSEN project team leads an annual national forum to share outcomes and strategies. The QSEN website offers teaching strategies, annotated bibliographies, demonstration projects, videos, learning modules, and a facilitator panel to assist with educator development. Educators and organizations responsible for accreditation, licensing and certification of health professionals have embedded the competencies into nursing education standards to help lead transformation of how we prepare students and nurses to be proficient in these competencies essential to quality and safety (Sherwood, 2012).

**Advancing scholarship**

A third area of focus is advancing the scholarship in all areas of quality and safety. Research is imperative to develop the scientific evidence of quality and safety issues to know how and to what extent patients are harmed and ways to mitigate. We need evidence-based educational strategies to determine best
practices for teaching and implementing quality and safety concepts in practice. Traditional education methods relying on lecture have not demonstrated the capacity to achieve the KSAs needed to redesign health care across multiple settings (Sherwood, 2012; Ironsides & Cerbie, 2012). To integrate the competencies, educators need evidence-based curricula and teaching strategies to derive innovative educational interventions, whether as part of their formal education or as staff in clinical settings (www.qsen.org). Examples of work include the following:

- Hobgood et al. (2010) compared four pedagogical approaches including high and low fidelity to measure changes in knowledge and attitude of nursing and medical students from an educational intervention for interdisciplinary teamwork.
- Welsh, Flanagan, and Ebright (2010) compared two methods of end-of-shift handoffs to examine communication and potential for adverse events.
- Varkey, Reller, Smith, Ponto, and Osborn (2006) used the QI Knowledge Application Tool to measure effectiveness of a 4-week quality improvement learning experience with interprofessional learners.
- A QSEN-led 15-school Pilot Learning Collaborative demonstrated integration of the competencies in which the schools worked with a clinical partner (Cronenwett, Sherwood, & Gelmon, 2009; www.QSEN.org).

These few examples illustrate opportunities to develop evidence-based approaches to achieving the IOM recommendations. We have an unparalleled opportunity for nursing leadership and scholarship to help improve our health systems. We need to determine the effectiveness of what we are teaching about quality and safety, measure the long-term behavior change, and assess the skills needed in the workplace that will drive curricular changes. Benner, Sutphin, Leonard, and Day (2010) call for nurses to claim this opportunity for radical redesign of nursing education that can match the radical changes needed in health care delivery. Scholarly investigation can determine effective pedagogies, outcomes of care interventions, strategies for reporting and investigating errors, system malfunctions that lead to work-arounds, and communication that promotes interprofessional teamwork.

Summary

Ten years later, the United States still has no lead organization for quality and safety in spite of the recommendation for a comprehensive strategy, and other changes are being implemented slowly. Various organizations, including professional and consumer groups, have developed regulations, educational programs, and initiatives for leading change. There is progress in establishing a culture conducive for pursuing health care quality and reporting; clinicians are replacing the fear of a punitive response and cover-up with a focus on accountability and reporting events so that through analysis the organization
can implement improvements and prevention strategies. Nurses have new roles and responsibilities in continuous quality improvement that encourages a culture of inquiry and asking questions, and investigates outcomes and critical incidents from a system perspective. The QSEN project continues to lead integration of quality and safety competencies in all levels of nursing education. Progress in evidence-based education approaches and pedagogies will help determine ways to prepare clinicians with new mindsets and lasting behavior change based on the six quality and safety competencies.

References


Quality and Safety: An Overview


Resources

Agency for Healthcare Research and Quality: www.ahrq.gov
American Association of Colleges of Nursing: www.aacn.nche.edu
American Association of Critical Care Nurses, Clinical Practice Resources: www.aacn.org/DM/MainPages/PracticeHome.aspx?lastmenu=divheader_clinical_practice
American Nurses Association. The National Center for Nursing Quality Indicators: www.nursingquality.org
American Organization of Nurse Executives: www.aone.org
Center for Studying Health System Change: www.hschange.org
Commonwealth Fund: www.commonwealthfund.org
Consumers Advancing Patient Safety: www.patientsafety.org
Empowered Patient Care Coalition: www.empoweredpatientcoalition.org
Institute for Healthcare Improvement: www.ihi.org
Institute of Medicine: www.iom.edu
Institute for Safe Medication Practices: www.ismp.org
International Council of Nurses. www.icn.ch
Joint Commission: www.jointcommission.org
Nursing Alliance for Quality Care: http://www.gwumc.edu/healthsci/departments/nursing/naqc/
National League for Nursing: www.nln.org
National Quality Forum: www.qualityforum.org
National Patient Safety Foundation: www.npsf.org
Quality and Safety Education for Nurses: www.qsen.org
Robert Wood Johnson Foundation: www.rwjf.org