

SECOND EDITION

Quality and Safety in Nursing

A COMPETENCY
APPROACH TO
IMPROVING OUTCOMES

Edited by
Gwen Sherwood
and Jane Barnsteiner

WILEY Blackwell

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A Competency Approach to Improving Outcomes

Second Edition

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To faculty, students, and clinicians who are successfully pioneering the work of QSEN. On a daily basis their work demonstrates their commitment that the highest quality, safest care can only be achieved when all clinicians are delivering *person-and-family-centered care* as members of an *interprofessional team*, emphasizing *evidence-based practice, safety, quality improvement approaches, and informatics*.

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Foreword

The Carnegie Foundation for the Advancement of Teaching's Preparation for the Professions Program called out important changes needed in the preparation for professional work in medicine, nursing, law, engineering, and the clergy. Professor Patricia Benner led the team for nursing (Benner *et al.*, 2010). They began by noting that profound changes were occurring in the practice of the nursing professional that were arising from science, technology, patient activism, market-driven financing of health care service, and in the settings where these forces come together and where nurses now practice. They noted a practice-to-education gap characterized by the need to match learning with the realities of the work that nursing professionals face. This book begins to address that gap by opening the knowledge and skills needed to understand and improve these new practice settings of nursing.

All professions earn societal recognition as a “profession” by the ongoing improvement of their own work (Houle, 1980). But as Benner and colleagues (2010) note, improving health care service now isn't easy or simple. Health care service for patients and populations today occurs in complex, interdependent systems (Batalden, Ogrinc, and Batalden, 2006). Designing and testing changes for improvement in those systems requires new knowledge and skill. This book is about developing those competencies essential for a sense of professional mastery.

“Doing quality improvement” is not necessarily the same as “improving the quality of what we do”—the profession-enabling work. This is not the work of a small department of zealots who staff offices to meet regulations; it is part of the work of every person who claims designation today as a health care professional.

Improving the quality, safety, and value of health care service invites the use of multiple knowledge disciplines (Batalden *et al.*, 2011). Diverse knowledge-building traditions from biological, social, and physical sciences and the humanities come together to contribute to the development of the knowledge and science of improvement. This book is about those knowledge domains and invites attention to the scholarly and applied work of educators and researchers who develop and foster critical thinking about improving health care.

At the core of professional work in service of improving health for a patient is a series of interactions that can be represented by the simple logic formula:

Generalizable science X Particular patient → Measured improvement.

Each element of this logic comes together millions of times every day as clinical health professionals do their work.

We can use a similar logic representation for improving health care service:

(Individual, population goal + Generalizable science) X Particular context → Measured performance improvement.

Each phrase or symbol of this simple logic formula is informed by knowledge that is developed and tested in customized ways. Because all health care service is co-produced by two parties, the person we know as a “patient” and the person we know as a “health care professional,” the process begins by creating a shared aim (Batalden *et al.* 2015). The shared aim comes from knowledge of the goal sought by the patient and identification of the contribution that the professional’s generalizable knowledge can offer. They work together. Good professional knowledge about “generalizable science” is developed by carefully controlling and minimizing “context” as a variable. In contrast, particular context knowledge comes from obsessing about context, that is, the systems, processes, traditions, patterns, and so forth, that characterize and give “particular” identity to contexts. Measuring performance improvement means measuring over time—not just at two points in time—and it means using balanced measures to understand the multidimensional aspects of quality, safety, and value of process and outcome of health care service. Even the symbols represent knowledge domains. The “+” sign signifies knowing how to match the contribution that the professional’s science can make to the realization of the patient’s goal. The “X” signifies the important role that context plays in the results of the shared work. The “→” represents the knowledge of actually executing change—making it happen. Each part and symbol of the formula invites a different way of knowing, and they must all come together to make change for the improvement of health care service. (Batalden and Davidoff, 2007).

Benner and her colleagues (2010) also note that nurses have very diverse entries, pathways, curricula, and time frames to become a nurse. This book invites attention to that diversity by focusing on the content of what must be mastered—the competencies themselves. As health professions engage in competency-based learning, it will be important to avoid reducing all the content that is signaled by the competencies into mechanical packages that fail to invite the whole person to the learning and its application in relationship to another person in need.

What is important in health care service is reducing the burden of illness for individuals and populations. The people, and what they are struggling to do together, is what is real in health care. Together they form some relationship and engage in some activity. This relationship and activity are connected by knowledge, skill, and habit. The intervention for improving health care service quality, safety, and value is a social change that is learned experientially (Batalden *et al.*, 2011). Improvement theories, methods, tools, and techniques are all potentially helpful, but we must never confuse them with the work of improving health care service, lest we make an error similar to the one of confusing a map for the territory it represents.

Creating work environments that sustain the generative, refreshing work of improving health care service involves the inextricable linkage of three aims and invites the work of everyone, illustrated in Figure F.1 (Batalden and Foster, 2012). Health care professionals have an opportunity to help design and weave these together.

It is often noted by practicing nurses and other clinicians that their job is to protect the patient from the system of health care service in which the patient and clinician meet. This frames responsibility for the design of the system and its ongoing improvement as external to the working professional on the front lines of health care service. I prefer a different view of professional work, one that accepts the professional responsibility for health care service system quality, safety, and value. This book can help nurses and other clinicians who are not content to work in alien systems.

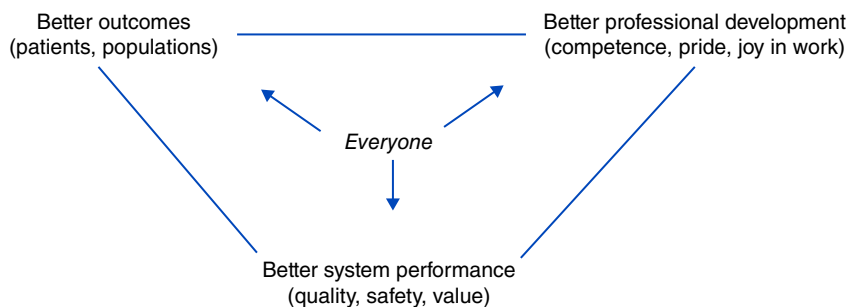


Figure F.1 Creating work environments for improving health care service.

A nurse who was a member of a class I was teaching many years ago said it very succinctly: “We actually have two jobs—to do our work and to improve it.”

This book invites the work of improving health care, the work that helps make health care workers professionals. Enjoy it.

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References

- Batalden, M., Batalden, P., Margolis, P., Seid, M., Armstrong, G., Opipari-Arrigan, L., and Hartung H. (2015) Coproduction of healthcare service. *BMJ Quality & Safety*, Published Online First [15 September 2015] doi:10.1136/bmjqs-2015-004315.
- Batalden, P., Bate, P., Webb, D., and McLoughlin, V. (2011) Planning and leading a multidisciplinary colloquium to explore the epistemology of improvement. *BMJ Quality & Safety*, 20, i1–i4.
- Batalden, P., and Davidoff, F. (2007) What is quality improvement and how can it transform healthcare? *Quality & Safety in Health Care*, 16, 2–3.
- Batalden, P., Davidoff, F., Marshall, M., Bibby, J., and Pink, C. (2011) So what? Now what? Exploring, understanding and using the epistemologies that inform the improvement of health care. *BMJ Quality & Safety*, 20, i99–i105.
- Batalden, P. and Foster, T. (eds.) (2012) *Sustainably Improving Health Care: Creatively Linking Care Outcomes, System Performance, and Professional Development*. London: Radcliffe.
- Batalden, P., Ogrinc, G., and Batalden, M. (2006) From one to many. *Journal of Interprofessional Care*, 20, 549–551.
- Benner, P., Sutphen, M., Leonard, V., and Day L. (2010) *Educating nurses: A call for radical transformation*. San Francisco: Jossey-Bass.
- Houle, C.O. (1980) *Continuing learning in the professions*. San Francisco: Jossey-Bass.

Preface

The synergy inspired by the Quality and Safety Education for Nursing (QSEN) project over the past decade is leading the transformation of nursing education and practice to improve quality and safety of health care (Cronenwett *et al.*, 2007; Cronenwett *et al.*, 2009). Through a series of grants from the Robert Wood Johnson Foundation between 2005 and 2012, the QSEN project was led by a steering team, a national expert panel, and an advisory board who identified the knowledge, skills, and attitudes (KSA) for the six competencies first identified by the Institute of Medicine (IOM) think tank (2003): patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics. With the second edition of this seminal text, we celebrate the continuing journey to improve our health care systems launched 11 years ago by a group of pioneers who helped identify and lead early adopters through four phases of QSEN.

The original two dozen pioneers who launched QSEN expanded to 40 champions who became QSEN facilitators (www.qsen.org) and then to hundreds of educators, clinicians, and administrators who led the Pilot Schools Learning Collaborative, the American Association of Colleges of Nursing (AACN)/QSEN Faculty Development Institutes, and countless projects. Although transformation has been swift and pervasive in many settings, many gaps remain. The six quality and safety competencies from the QSEN project are firmly embedded in nursing education essential competencies in both the National League for Nurses and the AACN documents and are spreading globally across education and clinical settings. A train-the-trainer approach helped spread educational approaches, preparing thousands of nursing faculty to integrate the new KSAs for the six core competencies. The passion to improve health care has transformed into new education models and teaching strategies, clinical initiatives and applications, evidence-based practices, and safety cultures.

Faculty and clinicians are embracing a new way of thinking about quality and safety; new partnerships are evolving across professions and among academic and service agencies creating a bold new vision for health professions, education, and practice. Consumers and health care professionals both recognize that health care in America remains far from ideal, but believing joint efforts among educators and clinicians across multiple professions can together make it better.

Quality and safety are universal values in health care; nurses in both education and practice settings have the *will* through a common value system if they are helped to develop the *ideas* for leading change, and are provided the tools to *execute* the change needed and in fact are inspired by the opportunity to work in systems focused on safe quality care.

Education is indeed the bridge to quality (IOM, 2003), and progress comes with each generation of nurses prepared with the competencies to work in and lead health care systems focused on safety: patient-centered care, teamwork and collaboration, quality improvement, safety, evidence-based practice, and informatics. Have we reached a tipping point? Nurse leaders have long recognized the

imperative to improve patient care outcomes and have been a part of early quality improvement work within nursing. Safety and patient-centered care have been recognized as cornerstones of effective nursing practice, but with new evidence, a science of safety and quality improvement provide a sharper focus to quality and safety initiatives.

The expanded version of this book seeks to address the needs of faculty, practicing nurses, administrators, and nursing students at all educational levels. Each chapter tells a part of the story and collectively offers a roadmap to improve quality and safety. Updated information in each chapter provides a current view of application of quality and safety; consumer efforts driving change are found in Chapter 2; and Chapter 3 presents the first person account from Dr. Cronenwett of how QSEN began as well as the continuing story of this award-winning project to become the QSEN Institute at Case Western Reserve University School of Nursing. Section 2 includes an in-depth current view of each of the six competencies. The chapters provide a resource for faculty, graduate students, practicing nurses, and other leaders including teaching strategies, resources, and current references. Section 3 has redesigned chapters on implementing quality and safety across settings. A revised chapter is provided on the mirror of education and practice to better understand teaching approaches for redesigning teaching approaches. Other instructional approaches include narrative pedagogy, integrating the competencies in simulation, a new chapter to explore application in clinical learning, the critical nature of interprofessional teamwork to improve quality and safety, and developing personal leadership to lead change in organizations focused on improving quality and safety. The last chapter examines global applications of quality and safety, and outlines the need for sharing strategies related to education, research, and practice changes around the world. Three appendices provide additional resources with the knowledge, skills, and attitudes tables for each of the prelicensure and graduate competencies, the results of a Delphi study to assist educators with placing the 162 KSAs for beginner, middle, and advanced placement in nursing programs and staff development, and an extensive glossary.

Each contributor is a leader in quality and safety and offers his or her work to stimulate all nurses and health care professionals to share and disseminate their work around the globe. Together, we hope to rebuild health care as a high-reliability system focused on safety and quality. It is our hope that the shared and expanding story of QSEN provides motivation and *will*, that the expansive tool kit within these pages stimulates *ideas*, and that the continuing efforts for faculty and leader development translate to *execution* as we move toward new generations of nurses fully prepared to lead and work in health care systems based on cultures of quality and safety.

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Section 1

Quality and Safety

An Overview

Driving Forces for Quality and Safety

Changing Mindsets to Improve Health Care

Gwen Sherwood, PhD, RN, FAAN, ANEF

Julia stashed her umbrella and looked at the overflowing waiting room of the Emergency Department (ED) where she had worked weekends for the past five years. It was summer and staffing was short even for a Sunday evening in August; several staff were on vacation and one called in sick. A storm had pounded the area, and there was a power outage. The hospital was on the emergency generators, and that meant the electronic chart was slow in response because of the overload. Staff were taking shortcuts due to time pressures. She thought about these breakdowns and remembered the workshop she recently attended on quality improvement. The focus had been on identifying problems and applying quality improvement tools to collect data on the problem, analyze results, and design solutions to close the gap between actual and desired practice. She noted that Ms. Masraf was in the waiting area; she had diabetes, and wounds were difficult to heal. Infection was a constant threat so she had been to the emergency department on several occasions. Julia turned at the sound of a crash and saw that one of the nurse aids had fallen where water had collected from wet umbrellas. Falls were common in the ED as a result of the population served. Patients may be unstable due to their disease condition or influence of alcohol or drug use. She wondered if she could initiate a quality improvement study on any of these continuing problems she saw every time she came to work. Other staff seemed to think this was just a part of how the emergency room functioned.

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* (2000), which estimated there were between 44,000 and 98,000 deaths each year as a result of medical harm. Makary and Daniel (2016) declare this number is both limited and out of date. Their projection released in 2016 cites the deaths due to medical error is more likely 251,454, making this the third leading cause of death in the United States. Since the IOM 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, health care safety remains a major threat (Balik and Dopkiss, 2010; Cronenwett, 2012; Leape and Berwick, 2005; Wachter, 2004; Wachter, 2010).

The original 1999 report was the first evidence of the gap between the status of health care delivered and the quality of health care that the IOM panel believed Americans were entitled to receive. A number of reports have heralded ways to improve the system of care. The 2001 *Crossing the Quality Chasm: A New Health System for the 21st Century* issued recommendations for sweeping changes in

our systems. This was followed by the 2003 IOM report, *Health Professions Education: A Bridge to Quality*, which called for a radical redesign of health professions education to achieve six core competencies described as essential to improve twenty-first 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 15 years demonstrates 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 billion and 29 billion each year and costs patients and families economically but also emotionally and physically. Providers who work in flawed systems and deal with inadequate resources experience dissatisfaction and low morale. For all, there is an erosion of trust from the pitfalls experienced.

Health professions education continues to undergo transformation to include preparation in the knowledge, skills, and attitudes (KSA) needed to improve our systems of care (Batalden, Leach, and Ogrinc, 2009; Cronenwett *et al.*, 2007). In 2011, representatives of the major health professions worked together to reach consensus on four domains of interprofessional education competencies that crosswalk these competencies for improving quality and safety: roles and responsibilities, teamwork, communication, and ethics and values (Interprofessional Education Collaborative [IPEC], 2011).

The same questions from 15 years ago continue to need solutions. What are issues in redesigning our systems of care? How do we prepare health professionals with what they need to know and do? How can organizations develop cultures 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 a fresh look at how these reframe the education needs for nurses. In a safety culture, the 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

When the initial data revealed in the IOM Quality Chasm series of reports became public it, 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. And, without just culture emphasis, there was little transparency or accountability in sharing information with patients and families who experienced harm.

The 2001 IOM report, *Bridging the Quality Chasm*, identified the STEEEP model to improve health care quality and safety. STEEEP outlines performance measures to assure care is safe, timely, effective, efficient, equitable, and patient centered. These aims provide the measures of quality and accountability that continue to elude health care. 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, and 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.

Although most data are based on acute care in patient settings, errors can occur in physician offices, outpatient settings, nursing homes, patient homes, and so forth. An annotation of the reports with their recommendations is provided in Textbox 1.1.

Textbox 1.1 Summary: The Institute of Medicine Quality Chasm Series (www.iom.edu)

- *To Err Is Human: Building a Safer Health System* (2000)
 This first IOM report presented the first aggregate data on the depth and breadth of quality and safety issues in US 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 twenty-first century health care seeks to assure that patient care is 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 twenty-first 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, integrating learning experiences, developing evidence-based curricula and teaching approaches, initiating faculty development to model the core competencies, and implementing 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.

The data are startling, particularly related to medication errors, one of the most common according to *Identifying and Preventing Medication Errors* (Aspen *et al.*, 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, inpatients 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 for preventable adverse events ranges between \$17 billion and \$29 billion; additional health care accounts for more than half of 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 intangible, immeasurable costs, such as 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 (NPSF) (www.npsf.org) serve both consumers and 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 have emerged to promote the safety and quality agenda, 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 (2017) offers a summary of these federal, regulatory, professional, and consumer agencies and organizations.

With lack of information on which errors occur and how they 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, outpatient 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).

Examining 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 and change attitudes about the necessity of focusing on safety. Overcoming these historic views and overuse of the terms are part of the application of the new KSAs associated with 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, and Townsley, 2008; Johnson, 2017). 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 outcome. 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 and 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 and 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 (2017) and Sammer and colleagues (2010). Safety science builds on Reason's human error trajectory, which uses the model of lining up a stick through the holes of Swiss cheese; sometimes redundancies in the system fail, and all the holes line up (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.

Errors can be defined in multiple ways with varied components. 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 similar events in a central system. Organizations with a culture of safety have implemented processes through risk management to collect error reports for root cause analysis, often classifying them using a tiered system of potential for harm. 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 merely blaming individuals. Exploring what happened acknowledges 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 quality and safety issues and the influence of 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 tasks 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. Nurses manage care coordination and employ checklists and other strategies to assure safe hand-offs 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; poorly designed protocols and system designs also contribute to quality and safety outcomes (Hughes, 2008). The best way to reduce health care harm is by preventing errors before they happen. Focusing on safety helps eliminate discrepancies in care that result from provider actions in delivering care. Safety huddles or safety briefings are becoming a part of daily routine in many hospitals to identify and focus on high risk situations.

Quality improvement is a critical component of safety—it requires assessing safety issues for prevalence, making comparisons across units or departments, and using benchmark data to help clinicians improve their own practice as well as that of 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.

National Organizations for Quality and Safety

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 that are 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 monitoring outcomes. 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.ihl.org) is a strong advocate for quality and safety innovations, bringing collaboration among all professions. The IHI's 100,000 and 5 Million Lives campaigns are just two examples of focused collective efforts for improving outcomes. IHI describes the goals of health care reform in the US as the Triple Aim: improve population health, reduce costs, and improve the quality of care (Berwick, Nolan, and Whittington, 2014). These goals align with the STEEEP model from the IOM (2001) and also place new demands on health care professions education programs to prepare a workforce capable of changing the system (Reeves *et al.*, 2013). New skills for interprofessional care, quality and process improvement, and population health management-meaning educational institutions must align with practices, health systems and the communities they serve (Brandt *et al.*, 2014). The work of the Affordable Care Act seeks reform and redesign of the systems of care to provide better care, align cost and value, and improve outcomes. Professional nursing organizations have responded to the imperative to improve quality and safety in health care systems (Earnest and Brandt, 2014).

Schumann (2017) provides a comprehensive description of national groups and their goals of quality and safety. 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 based standards on continuous quality improvement to recognize nursing leadership and organizational quality in nursing care delivery (Triolo, 2012). 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 and Dunton, 2007; Schumann, 2017).

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 and 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 and 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.

Comparing Progress to Improve Quality and Safety

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.

Improvements to quality and safety have been slow and uneven. Two progress reports 5 years and 10 years after the release of *To Err Is Human* (IOM, 2000) examine progress based on these goals. Longo *et al.* (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. Five years after the initial report, hospitals were still not satisfactorily meeting the IOM recommendations. Progress is slow, and technology applications that could improve safety lag.

Another study (Wachter, 2004) measured five areas of patient safety five years after the initial release of the IOM data and also reported slow progress in addressing safety and quality goals. Robust regulations had an initial impact on early improvements, but that impact slowed quickly because regulations alone do not result in lasting change. Progress was noted in information technology applications and workforce organization and training. Still, there was little demonstrable impact from early error reporting systems and only small improvement in accountability. At five years after the initial galvanizing report, Wachter concluded, “we are at the end of the beginning,” meaning much work remains.

In 2010 Wachter assessed 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, AHRQ, 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.

Measuring the impact of quality and safety efforts is challenging, particularly patient deaths due to preventable harm because of its hidden nature; it sometimes depends on providers being willing to share exactly what happened, varying definitions of what is reportable, and fear of punishment. Since the 1999 IOM report, several studies have issued projections of patient deaths due to preventable harm from a health care encounter.

Inpatient deaths between 2000 and 2002 based on AHRQ Patient Safety Indicators in a Medicare population estimated 575,000 deaths extrapolated to 175,000 per year (Health Grades, 2004). A 2008 report from the Inspector General reported 180,000 deaths annually among Medicare inpatients (Department of Health and Human Services [HHS], 2008). Classen *et al.* (2008) projected roughly 400,000 deaths per year; Landrigan *et al.* (2010) studied North Carolina inpatients over six years and estimated 134,581 deaths; James (2013) projected a range of 250,000 to 400,000 per year, and, as noted earlier, Makary and Daniel (2016) estimated 251,454. These reports demonstrate the challenges in accurate numbers because of reporting issues, and as Makary and Daniel note, there is no diagnosis for death from medical error on death certificates, which they used for their report. Regardless of the exact number, these reports, like the report cards above, indicate change is coming slowly in trying to reduce patient harm due to error. Still, with any number above zero, work remains to be done.

Other indicators show promise. A focused effort implemented by The Joint Commission (2014) reduced patient falls by 35% in seven hospitals. Between 2010 and 2013, there was a 17% decline in hospital-acquired conditions, and 50,000 fewer patients died, saving \$12 billion in health care costs.

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, 2017) 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.

A Systems Approach to Improve Quality and Safety Outcomes: High Reliability Organizations

High-reliability organizations (HRO) have effectively applied a systems approach toward quality and safety. Error prevention shifts from the individual to a shared accountability across the system, which assures errors are analyzed through root cause analyses. Understanding how the adverse event trajectory occurred allows the system to reconsider protocols, procedures, or other actions that will reduce the possibility of a repeat error. The National Patient Safety Foundation (NPSF, 2014) has defined health care errors as unintended health care outcomes caused by a defect in care delivery to a patient, therefore a shared system accountability for patient harm. To prevent harm to patients, organizations adopt operational systems and processes that minimize risk and focus on maximizing interception of errors before harm occurs. Safe care, in fact, is preventing harm to patients during the care that is intended to help them; preventable harm involves errors that could have been avoided through reasonable actions and decisions (Sherwood and Armstrong, 2016).

HROs emphasize just culture as a feature of a safety culture (Oster and Braaten). A non-punitive approach to patient harm is built on the engagement and commitment of everyone from the board

room to all staff to accountability, honesty, integrity, and mutual respect in a just culture. Accountability is a critical aspect of a culture of safety; recognizing and acknowledging one's actions is a trademark of professional behavior. All staff are trained and empowered to participate in an error-reporting system without fear of punitive action. Near misses are treated as opportunities to improve by examining gaps and correcting design flaws. Safety principles to eliminate hazards guide job design, management of equipment, and working conditions.

Simplifying and standardizing processes are key components of high reliability organizations so that results are predictable, thus improving reliability. Reliability is expecting to get the same result each time an action occurs; therefore, a reliable system seeks to have defect-free operations in spite of a high risk environment. Health care delivery has intersecting units or microsystems. How these systems function together impacts quality and safety outcomes. For instance, the way patients are assigned beds from the ED to one of the inpatient units, or how the lab responds in urgent situations to the need for blood draws, or how patients are discharged to a skilled nursing facility are opportunities for standardized operational procedures to improve effective outcomes. Five principles guide HROs: sensitivity to operations, preoccupation with failure, reluctance to simplify, deference to expertise, and commitment to resilience. Reliability has economic consequences. Hospital reimbursement is increasingly tied to quality and safety outcomes (Schumann, 2017). Hospitals may not be reimbursed for patient harms such as hospital-acquired infections, therefore reliable procedures are needed to insure adherence to hand-washing procedures, evidence-based catheter insertion and care guidelines, and other evidence-based best practices.

Nurses on the Frontlines: Changing Mindsets, Improving Quality and Safety

Although 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 are ways that nurses can help lead innovations to achieve the goals of 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.