Quality and Safety in Nursing: A Competency Approach to Improving Outcomes is the first comprehensive text of its kind devoted to the nursing community's role in improving quality of care and patient safety. Edited by key members of the Quality and Safety Education for Nursing (QSEN) steering team, the book brings together information from various loci and expertly situates it within the continuum of nursing education and practice.

Quality and Safety in Nursing is divided into four sections. The first section links the national initiative for quality and safety to its origins in the IOM report. Section two defines each of the six QSEN competencies in turn, provides instruction on acquiring the skills needed to achieve each competency, and constructs a framework for implementation. Section three further defines implementation strategies in formal education as well as transition into practice. The final section of the book looks toward the future of public policy and global initiatives in improving health care outcomes.

A key resource for academics and clinicians alike, Quality and Safety in Nursing is an essential addition to the library of nurse leaders across the globe.

About the Editors:

Gwen Sherwood, PhD, RN, FAAN, is Professor and Associate Dean for Academic Affairs at the University of North Carolina – Chapel Hill.

Jane Barnsteiner, PhD, RN, FAAN, is Professor of Pediatric Nursing at the University of Pennsylvania School of Nursing in Philadelphia.

Also of interest:

Educating Nurses: A Call for Radical Transformation
Patricia Benner, Molly Sutphen, Victoria Leonard, and Lisa Day

Improving Health through Nursing Research
William L. Holzemer
ISBN: 978-1-4051-3411-8
Quality and Safety in Nursing
A Competency Approach to Improving Outcomes
Quality and Safety in Nursing

A Competency Approach to Improving Outcomes

Editors

Gwen Sherwood, PhD, RN, FAAN
Professor and Associate Dean for Academic Affairs
School of Nursing
University of North Carolina at Chapel Hill
Chapel Hill, NC

Jane Barnsteiner, PhD, RN, FAAN
Professor of Pediatric Nursing
School of Nursing
University of Pennsylvania
Philadelphia, PA
# Contents

Contributors vii  
Foreword xi  
*Paul Batalden*  
Preface xv  
Acknowledgements xvii  

**SECTION 1: QUALITY AND SAFETY: AN OVERVIEW**  
1 Driving Forces for Quality and Safety: Changing Mindsets to Improve Health Care  
*Gwen Sherwood*  

2 Policy Implications Driving National Quality and Safety Initiatives  
*Mary Jean Schumann*  

3 A National Initiative: Quality and Safety Education for Nurses (QSEN)  
*Linda R. Cronenwett*  

**SECTION 2: QUALITY AND SAFETY COMPETENCIES: THE QSEN PROJECT**  
4 Patient-Centered Care  
*Mary K. Walton and Jane Barnsteiner*  

5 Teamwork and Collaboration  
*Joanne Disch*  

6 Quality Improvement  
*Jean Johnson*  

7 Evidence-Based Practice  
*Mary Fran Tracy and Jane Barnsteiner*
Contents

8 Safety 149
Jane Barnsteiner

9 Informatics 171
Judith J. Warren

SECTION 3: STRATEGIES TO BUILD A CULTURE OF QUALITY AND SAFETY 189

10 The Imperative to Transform Education to Transform Practice 191
Gwen Sherwood

11 Narrative Teaching Strategies to Foster Quality and Safety 211
Pamela M. Ironside and Elizabeth Cerbie

12 Integrating Quality and Safety Competencies in Simulation 227
Carol F. Durham and Kathryn R. Alden

13 Interprofessional Approaches to Quality and Safety Education 251
Shirley M. Moore, Mary A. Dolansky and Mamta K. Singh

14 New Graduate Transition into Practice: Improving Quality and Safety 267
Nancy Spector, Beth T. Ulrich and Jane Barnsteiner

15 Leadership to Create Change 289
Joanne Disch

16 Creating Cultures of Excellence: Transforming Organizations 305
Pamela Klauer Triolo

17 Quality and Safety: Global Issues and Strategies 323
Gwen Sherwood

Appendixes 341
Appendix A: Prelicensure Competencies 341
Appendix B: Graduate Competencies 351
Appendix C: Delphi Study Results 363

Glossary 377
Index 397
Editors

Gwen Sherwood, PhD, RN, FAAN
Professor and Associate Dean for Academic Affairs
School of Nursing
University of North Carolina at Chapel Hill
Chapel Hill, NC

Jane Barnsteiner, PhD, RN, FAAN
Professor of Pediatric Nursing
School of Nursing
University of Pennsylvania
Philadelphia, PA

Contributors

Kathryn R. Alden, EdD, MSN, RN, IBCLC
Clinical Associate Professor
School of Nursing
University of North Carolina at Chapel Hill
Chapel Hill, NC

Elizabeth Cerbie, MSN, RN
Director of Nursing Education
Indiana University Health
Indianapolis, IN

Linda R. Cronenwett, PhD, RN, FAAN
Beerstecher-Blackwell Term Professor
School of Nursing
University of North Carolina at Chapel Hill
Chapel Hill, NC
Contributors

Joanne Disch, PhD, RN, FAAN
Clinical Professor and Director
Katharine J. Densford International Center for Nursing Leadership
University of Minnesota School of Nursing
Minneapolis, MN

Mary A. Dolansky, PhD, RN
Assistant Professor
Frances Payne Bolton School of Nursing
Case Western Reserve University
Cleveland, OH

Carol F. Durham, EdD, RN, ANEF
Clinical Professor
School of Nursing
University of North Carolina at Chapel Hill
Chapel Hill, NC

Pamela M. Ironside, PhD, RN, FAAN, ANEF
Associate Professor
Director of the Center for Research in Nursing Education
Indiana University School of Nursing
Indianapolis, IN

Jean Johnson, PhD, RN, FAAN
Dean and Professor
School of Nursing
George Washington University
Washington, DC

Shirley M. Moore, PhD, RN, FAAN
Edward J. and Louise Mellen Professor of Nursing
Frances Payne Bolton School of Nursing
Case Western Reserve University
Cleveland, OH

Mary Jean Schumann, DNP, MBA, RN, CPNP
Executive Director, Nursing Alliance for Quality Care
Assistant Professor
George Washington University School of Nursing
Washington, DC
Mamta K. Singh, MD, MS  
Associate Professor of Medicine  
Case Western Reserve University School of Medicine  
Louis Stokes Cleveland Veterans Affairs Medical Center  
Cleveland, OH

Nancy Spector, PhD, RN  
Director of Regulatory Innovations  
National Council of State Boards of Nursing  
Chicago, IL

Mary Fran Tracy, PhD, RN, CCNS, FAAN  
Critical Care Clinical Nurse Specialist  
University of Minnesota Medical Center, Fairview  
Minneapolis, MN

Pamela Klauer Triolo, PhD, RN, FAAN  
President, Principled Leadership Solutions  
Houston, TX

Beth T. Ulrich, EdD, RN, FACHE, FAAN  
Vice President, Hospital Services  
CAE Healthcare  
Houston, TX

Mary K. Walton, MSN, MBE, RN  
Director, Patient and Family Centered Care  
Hospital of the University of Pennsylvania  
Associate Fellow  
University of Pennsylvania Center for Bioethics  
Philadelphia, PA

Judith J. Warren, PhD, RN, BC, FAAN, FACMI  
Christine A. Hartley Centennial Professor  
University of Kansas School of Nursing  
Director of Nursing Informatics  
University of Kansas Center for Health Informatics  
Kansas City, KS
The recent 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, Sutphen, Leonard, & Day, 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, 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 now isn’t easy or simple. Health care for patients and populations today occurs in complex, interdependent systems (Batalden, Ogrinc, & 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 for regulation-meeting, it is part of the work of every person who claims designation today as a health professional.

Improving the quality, safety, and value of health care invites the use of multiple knowledge disciplines (Batalden, Bate, Webb, & McLoughlin, 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 improving health for a patient is a series of interactions that can be represented by the simple logic formula:
Generalizable science + Particular patient $\rightarrow$ 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:

Generalizable science + Particular context $\rightarrow$ Measured performance improvement.

Each phrase or symbol of this simple logic formula is informed by knowledge that is developed and tested in customized ways. Good knowledge about “generalizable science” is developed by carefully controlling and minimizing “context” as a variable. Particular context knowledge comes from obsessing about context: 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 care. Even the symbols represent knowledge domains. The “+” sign signifies knowing how to construct a “good” plan that links context and science. The “$\rightarrow$” 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 (Batalden & 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.

What is important in health care is reducing the burden of illness for individuals and populations. What is real in health care is the people and what they are struggling to do together. The intervention for improving health care quality, safety, and value is a social change that is learned experientially (Batalden, Davidoff, Marshall, Bibby, & Pink, 2011). Improvement theories, methods, tools, and techniques are all potentially helpful—but we must never confuse them with the work of improving care, 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 involves the inextricable linkage of three aims and invites the work of everyone, illustrated in Figure F.1.

Health 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 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. I prefer a different view of professional work—one that accepts the professional responsibility for health care system quality, safety, and value. This book can help nurses and other clinicians who are not content to work in alien systems.

A nurse 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.

Paul Batalden, M.D.
Professor, The Dartmouth Institute for Health Policy and Clinical Practice
Dartmouth Medical School
Lebanon, New Hampshire
USA

References


This book began almost 10 years ago as a nagging thought in the minds of a few that health care could be better. The nagging thought became a national passion with the release of a series of reports from the Institute of Medicine (IOM). Consumers and health care professionals began to realize that health care in America was far from ideal and could be better. As each report uncovered a unique part of the puzzle, it became apparent that health professionals' education must be transformed to provide all disciplines with the knowledge, skills, and attitudes (KSAs) required to improve quality and patient safety. A consensus panel from the IOM defined the core competencies for all health care professionals to be: patient-centered care, teamwork and collaboration, quality improvement, safety, evidence-based practice, and informatics.

Nursing leaders recognized that there was much work to be done within nursing. Although safety and patient-centered care have long been the cornerstones of nursing practice, the health care landscape had changed, and challenges to safe, quality care have emerged. Through a series of grants from the Robert Wood Johnson Foundation, the Quality and Safety Education for Nurses (QSEN) project was born. A steering team, a national expert panel, and an advisory board identified the KSAs for each competency and developed a train-the-trainer approach to educate hundreds of nursing faculty in the new definitions of, and KSAs associated with, the six core competencies.

These pioneers in transforming nursing education helped identify and lead early adopters through the four phases of QSEN with the belief that nurses have the will through a common value system if they are helped to develop the ideas for leading change, and are provided the tools for execution for the change needed. Thus, as the original two dozen pioneers leading QSEN increased to 40 early adopters and champions (QSEN facilitators; www.qsen.org) and then to hundreds of faculty who participated in the pilot schools and the AACN/QSEN Institutes, the change was underway. After six years, we see a tipping point with quality and safety firmly embedded in nursing education essential competencies in both the National League for Nurses and the American Association for Colleges of Nursing documents. We see faculty excitedly embracing the new way of thinking about quality and safety, and we see new partnerships, across professions, and between
academic and service agencies, to create a bold new vision for health professions education and practice.

This book has been designed to meet the needs of faculty, practicing nurses, and nursing students at all educational levels. Each chapter tells a part of the story: Chapter 1 details the critical need for change; the numerous regulatory, policy, and consumer efforts driving change are found in chapter 2; and chapter 3 presents the first person account from Dr. Cronenwett of how QSEN began. Section 2 includes an in-depth coverage of each of the six competencies that can serve as a resource for faculty, graduate students, practicing nurses, and other leaders. Section 3 covers key content on transforming education and practice, redesigning pedagogy based on narratives, integrating the competencies in simulation, the critical nature of interprofessional teamwork to improve quality and safety, developing personal leadership to lead change, and organizational qualities that create excellence. The last chapter exposes quality and safety as a global issue, and outlines the need for sharing strategies related to education, research, and practice changes around the world. Appendices add additional resources, including the full set of prelicensure and graduate competencies, the results of a Delphi study to assist in curriculum redesign, and an extensive glossary.

Each contributor is a leader in quality and safety and offers his or her work to stimulate other work to be shared around the globe, as we rebuild health care to be a high-reliability system focused on safety and quality. It is our hope that the shared story provides motivation and will, that the 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.

Gwen Sherwood, PhD, RN, FAAN
Jane Barnsteiner, PhD, RN, FAAN
Coeditors
We dedicate this book to honor the lifelong work of nursing’s thought leader in quality and safety, Linda Cronenwett, PhD, RN, FAAN. It was her insight, knowledge, and dedication that launched the Quality and Safety Education for Nurses (QSEN) project to transform nursing education by integrating the competencies that help nurses deliver safe, quality care to their patients and families. We appreciate the support of the Robert Wood Johnson Foundation and the wise counsel of Rosemary Gibson, Sue Hassmiller, and Mary Joan Ladden. We are indebted to the QSEN Faculty Expert Panel, the QSEN Advisory Board, and the hundreds of nursing faculty who have participated in the QSEN journey over these past six years, for their effort and commitment to educate tomorrow’s nurses to create a safer, higher quality health care system.
Section 1

Quality and Safety: An Overview
Chapter 1
Driving Forces for Quality and Safety: Changing Mindsets to Improve Health Care
Gwen Sherwood, PhD, RN, FAAN

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.
Quality and Safety: An Overview (Batalden, Leach, & Ogrinc, 2009). 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 thirdparty 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)

- 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 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.

  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).
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.
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, 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.