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Quality and safety education for nurses

Linda Cronenwett, PhD, RN, FAAN

Gwen Sherwood, PhD, RN, FAAN

Jane Barnsteiner, PhD, RN, FAAN

Joanne Disch, PhD, RN, FAAN

Jean Johnson, PhD, RN-C, FAAN

Pamela Mitchell, PhD, CNRN, FAAN

Dori Taylor Sullivan, PhD, RN, CNA, CPHQ

Judith Warren, PhD, RN, BC, FAAN, FACMI

Quality and Safety Education for Nurses (QSEN) addresses the challenge of preparing nurses with the competencies necessary to continuously improve the quality and safety of the health care systems in which they work. The QSEN faculty members adapted the Institute of Medicine¹ competencies for nursing (patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics), proposing definitions that could describe essential features of what it means to be a competent and respected nurse. Using the competency definitions, the authors propose statements of the knowledge, skills, and attitudes (KSAs) for each competency that should be developed during *pre-licensure* nursing education. Quality and Safety Education for Nurses (QSEN) faculty and advisory board members invite the profession to comment on the competencies and their definitions and

on whether the KSAs for pre-licensure education are appropriate goals for students preparing for basic practice as a registered nurse.

A series of national commissions have documented significant problems related to safety and quality in the US health care system.¹⁻⁵ In light of these problems, reports from multiple national committees concluded that if health care is to improve, providers need to be prepared with a different set of competencies than are developed in educational programs today.^{1,6} Health professionals, using scientific evidence, need to be able to describe what constitutes good care, identify gaps between good care and the local care provided in their practices, and know what activities they could initiate, if necessary, to close any gaps.⁷ Faculties of medicine, nursing, and other health professions are challenged by the 2003 Institute of Medicine (IOM) *Health Professions Education* report¹ to mindfully alter learning experiences that form the basis for professional identity formation so that graduates are educated to deliver *patient-centered care* as members of an *interdisciplinary team*, emphasizing *evidence-based practice*, *quality improvement approaches*, and *informatics*.¹

Will, ideas, and execution are required to incorporate the development of the above competencies in nursing education. Unlike medicine, where commitment to an adapted version of the IOM competencies is now in place for the continuum from medical school to residency program to certification,^{8,9} nursing has no consensus on the competencies that could apply to all nurses—that would define what it means to be a respected and qualified nurse. At the core of nursing, however, lies incredible historical will to ensure quality and safety for patients. Evidence of valuing quality and safety competencies in nursing is evident in nursing publications,¹⁰⁻¹² standards of practice,¹³ and accreditation guidelines.^{14,15} The American Association of Colleges of Nursing Task Force on the Essential Patient Safety Competencies for Professional Nurs-

Linda Cronenwett is a Professor and Dean at the School of Nursing, University of North Carolina at Chapel Hill.

Gwen Sherwood is a Professor and Associate Dean for Academic Affairs at the School of Nursing, University of North Carolina at Chapel Hill.

Jane Barnsteiner is a Professor and Director of Translational Research at the School of Nursing and Hospital of the University of Pennsylvania, Philadelphia, PA.

Joanne Disch is Kathryn R. and C. Walton Lillehei Professor and Director of the Densford International Center for Nursing Leadership at the School of Nursing, University of Minnesota, Minneapolis, MN.

Jean Johnson is a Professor and Senior Associate Dean for Health Sciences at The George Washington University, Washington, DC.

Pamela Mitchell is Elizabeth S. Soule Professor and Associate Dean for Research at the School of Nursing, University of Washington, Seattle, WA.

Dori Taylor Sullivan is an Associate Professor and Chair, Department of Nursing at Sacred Heart University, Fairfield, CT.

Judith Warren is an Associate Professor at the University of Kansas School of Nursing and Director of Nursing Informatics at Kansas University Center for Healthcare Informatics, Kansas City, KS.

Reprint requests: Linda Cronenwett, PhD, RN, FAAN, Dean and Professor, School of Nursing, University of North Carolina at Chapel Hill, Carrington Hall, CB #7460, Chapel Hill, NC 27599-7460.

E-mail: lcronenwett@unc.edu

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Table 1. Patient-centered Care

Definition: Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.

Knowledge	Skills	Attitudes
<p>Integrate understanding of multiple dimensions of patient-centered care:</p> <ul style="list-style-type: none"> ● patient/family/community preferences, values ● coordination and integration of care ● information, communication, and education ● physical comfort and emotional support ● involvement of family and friends ● transition and continuity <p>Describe how diverse cultural, ethnic, and social backgrounds function as sources of patient, family, and community values</p>	<p>Elicit patient values, preferences and expressed needs as part of clinical interview, implementation of care plan and evaluation of care</p> <p>Communicate patient values, preferences and expressed needs to other members of health care team</p> <p>Provide patient-centered care with sensitivity and respect for the diversity of human experience</p>	<p>Value seeing health care situations “through patients’ eyes”</p> <p>Respect and encourage individual expression of patient values, preferences and expressed needs</p> <p>Value the patient’s expertise with own health and symptoms</p> <p>Seek learning opportunities with patients who represent all aspects of human diversity</p> <p>Recognize personally held attitudes about working with patients from different ethnic, cultural and social backgrounds</p> <p>Willingly support patient-centered care for individuals and groups whose values differ from own</p>
<p>Demonstrate comprehensive understanding of the concepts of pain and suffering, including physiologic models of pain and comfort</p>	<p>Assess presence and extent of pain and suffering</p> <p>Assess levels of physical and emotional comfort</p> <p>Elicit expectations of patient & family for relief of pain, discomfort, or suffering</p> <p>Initiate effective treatments to relieve pain and suffering in light of patient values, preferences, and expressed needs</p>	<p>Recognize personally held values and beliefs about the management of pain or suffering</p> <p>Appreciate the role of the nurse in relief of all types and sources of pain or suffering</p> <p>Recognize that patient expectations influence outcomes in management of pain or suffering</p>
<p>Examine how the safety, quality, and cost-effectiveness of health care can be improved through the active involvement of patients and families</p> <p>Examine common barriers to active involvement of patients in their own health care processes</p> <p>Describe strategies to empower patients or families in all aspects of the health care process</p>	<p>Remove barriers to presence of families and other designated surrogates based on patient preferences</p> <p>Assess level of patient’s decisional conflict and provide access to resources</p> <p>Engage patients or designated surrogates in active partnerships that promote health, safety and well-being, and self-care management</p>	<p>Value active partnership with patients or designated surrogates in planning, implementation, and evaluation of care</p> <p>Respect patient preferences for degree of active engagement in care process</p> <p>Respect patient’s right to access to personal health records</p>

Table 1. Continued

Definition: Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.

Knowledge	Skills	Attitudes
Explore ethical and legal implications of patient-centered care	Recognize the boundaries of therapeutic relationships	Acknowledge the tension that may exist between patient rights and the organizational responsibility for professional, ethical care
Describe the limits and boundaries of therapeutic patient-centered care	Facilitate informed patient consent for care	Appreciate shared decision-making with empowered patients and families, even when conflicts occur
Discuss principles of effective communication	Assess own level of communication skill in encounters with patients and families	Value continuous improvement of own communication and conflict resolution skills
Describe basic principles of consensus building and conflict resolution	Participate in building consensus or resolving conflict in the context of patient care	
Examine nursing roles in assuring coordination, integration, and continuity of care	Communicate care provided and needed at each transition in care	

ing Care recently completed an enhancement to the *Essentials of Baccalaureate Education for Professional Nursing Practice* to include exemplars of quality and safety competencies.¹⁶ But the *ideas* for what to teach, how to teach, and how to assess learning of the competencies are sorely lacking, and there are few, if any, examples of schools claiming to *execute* a comprehensive quality and safety curriculum.

DEFINING THE COMPETENCIES

Quality and Safety Education for Nurses (QSEN), funded by the Robert Wood Johnson Foundation, was designed to address these gaps—to build on the will, to develop the ideas, and to facilitate execution of changes in nursing education. Before teaching strategies could be developed, however, the QSEN faculty needed to identify specifically what was to be achieved. Working with an Advisory Board of thought leaders in nursing and medicine (see acknowledgments), the authors reviewed the relevant literatures and adapted the IOM¹ competencies for nursing. The goal was to describe competencies that would apply to *all* registered nurses.

In Tables 1–6, the definitions are shared with the profession with the hope that nursing, through its professional organizations, can benefit from the work. If nursing constituencies find these competency definitions clear and compelling, over time the competencies can serve as guides to curricular development for formal academic programs, transition to practice, and

continuing education programs. In addition, the definitions can provide a framework for regulatory bodies that set standards for licensure, certification, and accreditation of nursing education programs.

PRE-LICENSURE NURSING EDUCATION

The competency definitions provided a broad framework for QSEN's work to define pedagogical strategies for quality and safety education; however, as is evident in the accompanying article in this issue, when the competency names and definitions were used alone, the vast majority of pre-licensure program leaders stated that they already included content related to the competencies in their curricula.¹⁷ Relying on the respondent to interpret the general definitions of the QSEN competencies, levels of satisfaction with the extent to which students developed these competencies were high, and program leaders believed that faculty possessed the necessary expertise to teach these competencies.

The QSEN faculty and advisory board members did not share the view that pre-licensure nursing students were graduating with these competencies. We knew that many students graduated without ever communicating a recommendation for a change in patient care to a physician. Many of us knew that students learned the "five rights" of medication administration but lacked the language of common concepts related to safety sciences or quality improvement methods. With the

Table 2. Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care.		
Knowledge	Skills	Attitudes
Describe own strengths, limitations, and values in functioning as a member of a team	Demonstrate awareness of own strengths and limitations as a team member Initiate plan for self-development as a team member Act with integrity, consistency and respect for differing views	Acknowledge own potential to contribute to effective team functioning Appreciate importance of intra- and inter-professional collaboration
Describe scopes of practice and roles of health care team members	Function competently within own scope of practice as a member of the health care team	Value the perspectives and expertise of all health team members
Describe strategies for identifying and managing overlaps in team member roles and accountabilities	Assume role of team member or leader based on the situation Initiate requests for help when appropriate to situation	Respect the centrality of the patient/family as core members of any health care team
Recognize contributions of other individuals and groups in helping patient/family achieve health goals	Clarify roles and accountabilities under conditions of potential overlap in team-member functioning Integrate the contributions of others who play a role in helping patient/family achieve health goals	Respect the unique attributes that members bring to a team, including variations in professional orientations and accountabilities
Analyze differences in communication style preferences among patients and families, nurses, and other members of the health team	Communicate with team members, adapting own style of communicating to needs of the team and situation Demonstrate commitment to team goals	Value teamwork and the relationships upon which it is based Value different styles of communication used by patients, families, and health care providers
Describe impact of own communication style on others	Solicit input from other team members to improve individual, as well as team, performance	Contribute to resolution of conflict and disagreement
Discuss effective strategies for communicating and resolving conflict	Initiate actions to resolve conflict	
Describe examples of the impact of team functioning on safety and quality of care	Follow communication practices that minimize risks associated with handoffs among providers and across transitions in care	Appreciate the risks associated with handoffs among providers and across transitions in care
Explain how authority gradients influence teamwork and patient safety	Assert own position/perspective in discussions about patient care Choose communication styles that diminish the risks associated with authority gradients among team members	
Identify system barriers and facilitators of effective team functioning	Participate in designing systems that support effective teamwork	Value the influence of system solutions in achieving effective team functioning
Examine strategies for improving systems to support team functioning		

Table 3. Evidence-based Practice (EBP)

Definition: Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care.

Knowledge	Skills	Attitudes
Demonstrate knowledge of basic scientific methods and processes	Participate effectively in appropriate data collection and other research activities	Appreciate strengths and weaknesses of scientific bases for practice
Describe EBP to include the components of research evidence, clinical expertise and patient/family values	Adhere to Institutional Review Board (IRB) guidelines Base individualized care plan on patient values, clinical expertise and evidence	Value the need for ethical conduct of research and quality improvement Value the concept of EBP as integral to determining best clinical practice
Differentiate clinical opinion from research and evidence summaries	Read original research and evidence reports related to area of practice	Appreciate the importance of regularly reading relevant professional journals
Describe reliable sources for locating evidence reports and clinical practice guidelines	Locate evidence reports related to clinical practice topics and guidelines	
Explain the role of evidence in determining best clinical practice	Participate in structuring the work environment to facilitate integration of new evidence into standards of practice	Value the need for continuous improvement in clinical practice based on new knowledge
Describe how the strength and relevance of available evidence influences the choice of interventions in provision of patient-centered care	Question rationale for routine approaches to care that result in less-than-desired outcomes or adverse events	
Discriminate between valid and invalid reasons for modifying evidence-based clinical practice based on clinical expertise or patient/family preferences	Consult with clinical experts before deciding to deviate from evidence-based protocols	Acknowledge own limitations in knowledge and clinical expertise before determining when to deviate from evidence-based best practices

goal of clarifying rather than prescribing current meanings of the competency definitions, we outlined the knowledge, skills, and attitudes (KSAs) appropriate for pre-licensure education.

During 2 workshops and multiple email communications, the authors led the process of KSA development. We focused on all of pre-licensure education (associate, diploma, baccalaureate, and master's entry), because the ultimate goal is to assure that *all* patients will be cared for by nurses who have developed the KSAs for each competency. We tried to answer the question, "What should *nursing* promise with regards to its pre-licensure graduates' quality and safety education?"

At each step, we sought feedback from nursing faculty. In contrast to the results of the survey, when nursing

school faculty from 16 universities in the Institute for Healthcare Improvement Health Professions Education Collaborative reviewed the KSA draft, they uniformly reported that nursing students were *not* developing these KSAs. Additional focus groups were held with faculty who taught pre-licensure students in QSEN faculty members' schools, and the responses were the same. Although the faculty agreed that they *should* be teaching these competencies and, in fact, had thought they *were*, focus group participants did not understand fundamental concepts related to the competencies and could not identify pedagogical strategies in use for teaching the KSAs.

A chief nurse executive serving on the QSEN advisory board led a focus group of new graduates. Not only did these nurses report that they lacked learning expe-

Table 4. Quality Improvement (QI)

Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems.

Knowledge	Skills	Attitudes
Describe strategies for learning about the outcomes of care in the setting in which one is engaged in clinical practice	Seek information about outcomes of care for populations served in care setting Seek information about quality improvement projects in the care setting	Appreciate that continuous quality improvement is an essential part of the daily work of all health professionals
Recognize that nursing and other health professions students are parts of systems of care and care processes that affect outcomes for patients and families Give examples of the tension between professional autonomy and system functioning	Use tools (such as flow charts, cause-effect diagrams) to make processes of care explicit Participate in a root cause analysis of a sentinel event	Value own and others' contributions to outcomes of care in local care settings
Explain the importance of variation and measurement in assessing quality of care	Use quality measures to understand performance Use tools (such as control charts and run charts) that are helpful for understanding variation Identify gaps between local and best practice	Appreciate how unwanted variation affects care Value measurement and its role in good patient care
Describe approaches for changing processes of care	Design a small test of change in daily work (using an experiential learning method such as Plan-Do-Study-Act) Practice aligning the aims, measures and changes involved in improving care Use measures to evaluate the effect of change	Value local change (in individual practice or team practice on a unit) and its role in creating joy in work Appreciate the value of what individuals and teams can do to improve care

riences related to the KSAs, they did not believe their faculties had the expertise to teach some of the content.

In September 2006, three QSEN faculty leaders presented the competencies and KSAs in a special session of the National League for Nursing (NLN) Educational Summit. Over 100 ADN, diploma, and BSN faculty members listened to the results of the survey and contrasted those results with the responses from faculty focus groups. Once again, this audience confirmed the focus group feedback. Nurses and nursing faculty hold commitments to *patient-centered care* and *safety* central to their professional identities. They consider their teaching approaches to be aimed at the development of these competencies. Yet when educa-

tors understand the competency definitions by seeing the KSAs, they acknowledge that the KSAs represent a new view of what is required.

One additional source of feedback was obtained through written requests to leaders of advanced practice organizations that represent nurse practitioner and clinical nurse specialist faculties and accrediting bodies for nurse anesthesia and nurse-midwifery programs. We asked whether the competency definitions were appropriate for all nurses, including advanced practice nurses, and were told they were. We received helpful comments on the KSAs, and respondents supported the assessment that they were appropriate for pre-licensure graduates.

Table 5. Safety

Definition: Minimize risk of harm to patients and providers through both system effectiveness and individual performance.

Knowledge	Skills	Attitudes
Examine human factors and other basic safety design principles as well as commonly used unsafe practices (such as work-arounds and dangerous abbreviations)	Demonstrate effective use of technology and standardized practices that support safety and quality	Value the contributions of standardization/reliability to safety
Describe the benefits and limitations of selected safety-enhancing technologies (such as barcodes, Computer Provider Order Entry, medication pumps, and automatic alerts/alarms)	Demonstrate effective use of strategies to reduce risk of harm to self or others	Appreciate the cognitive and physical limits of human performance
Discuss effective strategies to reduce reliance on memory	Use appropriate strategies to reduce reliance on memory (such as, forcing functions, checklists)	
Delineate general categories of errors and hazards in care	Communicate observations or concerns related to hazards and errors to patients, families, and the health care team	Value own role in preventing errors
Describe factors that create a culture of safety (such as open communication strategies and organizational error reporting systems)	Use organizational error reporting systems for near-miss and error reporting	
Describe processes used in understanding causes of error and allocation of responsibility and accountability (such as root-cause analysis and failure mode effects analysis)	Participate appropriately in analyzing errors and designing system improvements	Value vigilance and monitoring (even of own performance of care activities) by patients, families, and other members of the health care team
	Engage in root-cause analysis rather than blaming when errors or near-misses occur	
Discuss potential and actual impact of national patient safety resources, initiatives, and regulations	Use national patient safety resources for own professional development and to focus attention on safety in care settings	Value relationship between national safety campaigns and implementation in local practices and practice settings

More presentations to faculty at national meetings are scheduled, and we expect the profession's vision for pre-licensure KSAs to evolve over time. The current versions of the KSAs are included in [Tables 1–6](#). Although it is beyond the scope of this article to describe and reference every idea presented, we include in the section below a few comments and references for each competency.

DISCUSSION OF KSAs

Patient-centered Care

The essential features of this competency were derived from work by Bezold,¹⁸ the Picker Institute,¹⁹ and Lorig.²⁰ Educators have worked hard on the issues related to diversity during the last years,

and curricula generally address principles of communication, physical comfort, emotional support, and education. The QSEN faculty and advisory board members believed greater attention might be needed to KSAs that are concerned with eliciting and incorporating patient preferences and values in the plan of care, valuing the patient (or surrogates) as partners in care, appreciating the legal and ethical dilemmas posed by shared decision-making, and developing expertise in managing conflict. New graduates who develop the KSAs would be advocates for removing barriers to the presence of patient surrogates and would invite patients or surrogates to partner with them, for example, in safe medication administration and safe transitions in care.

Table 6. Informatics

Definition: Use information and technology to communicate, manage knowledge, mitigate error, and support decision-making.		
Knowledge	Skills	Attitudes
Explain why information and technology skills are essential for safe patient care	Seek education about how information is managed in care settings before providing care Apply technology and information management tools to support safe processes of care	Appreciate the necessity for all health professionals to seek lifelong, continuous learning of information technology skills
Identify essential information that must be available in a common database to support patient care Contrast benefits and limitations of different communication technologies and their impact on safety and quality	Navigate the electronic health record Document and plan patient care in an electronic health record Employ communication technologies to coordinate care for patients	Value technologies that support clinical decision-making, error prevention, and care coordination Protect confidentiality of protected health information in electronic health records
Describe examples of how technology and information management are related to the quality and safety of patient care Recognize the time, effort, and skill required for computers, databases, and other technologies to become reliable and effective tools for patient care	Respond appropriately to clinical decision-making supports and alerts Use information management tools to monitor outcomes of care processes Use high quality electronic sources of healthcare information	Value nurses' involvement in design, selection, implementation, and evaluation of information technologies to support patient care

Teamwork and Collaboration

The essential features of this competency include sections related to self, team, team communication and conflict resolution, effect of team on safety and quality, and the impact of systems on team functioning.^{21–25} Although educators devote curricular time to fostering teamwork competence with members of the *nursing* team, faculty focus group participants acknowledged that little is done to foster shared mental models and communication styles essential to *inter-professional* team functioning. A mandate to strengthen teamwork and collaboration skills is derived from knowledge of the relationships between quality of team communications and clinical outcomes.^{23,24} New graduates who develop the KSAs would use team communication practices²⁵ and seek system support for effective team functioning wherever they worked.

Evidence-based Practice (EBP)

This competency provoked lengthy discussions about KSAs that would be relevant to all of pre-licensure nursing education. Many impressive guides to EBP in nursing^{26–28} include approaches that require competencies not universally developed in undergraduate students. The QSEN faculty and advisory board

desired a set of KSAs that would be achievable in all pre-licensure programs, recognizing that some baccalaureate and graduate-entry programs might choose to devote additional curricular time to develop additional KSAs for this competency. Currently, *all* programs were perceived to be lacking in sufficient development of KSAs that go beyond “understanding of basic scientific methods and processes.”²⁹ New graduates who develop the KSAs would differentiate between clinical opinion and various levels of scientific evidence³⁰ and value the need for continuous improvement based on new knowledge. They would also understand that EBP is about more than evidence—that it involves patient preferences and values and the clinical expertise necessary to understand when it is appropriate for clinicians to deviate from evidence-based guidelines in order to deliver high quality, patient-centered care.

Quality Improvement

Although nurses value highly their contributions to quality care, the KSAs associated with this competency present unique challenges to most nursing faculty. Course coordinators who design curricula, by and large, have not been exposed to improvement methods and tools for understanding variations in care.¹⁰ Although

faculty are aware of and concerned about the IOM *Quality Chasm*¹⁻⁵ reports and their implications for nurses, most are unprepared to teach quality improvement concepts or demonstrate them in practice. Faculty development and new partnerships with preceptors, nurse managers, physicians, and other health professional colleagues in clinical settings will be required if students are to acquire the skills described in Table 4.³¹ New graduates who develop the KSAs would learn and use improvement methods as part of their coursework and clinical practica, and they would enter the workforce prepared to participate in improvement work as a part of their daily work as health professionals.

Safety

Faculties take seriously their role in preparing nurses to deliver safe care to patients. One could argue that the entire curricula and supervised hours of clinical practice are designed with future safety for patients in mind. The bulk of the focus, however, is on teaching students the knowledge they need to care for individual patients, with limited—if any—emphasis on the immense system problems in safety.^{4,5,32} The QSEN faculty and advisory board members felt it was crucial, therefore, to have a separate “safety” competency for nursing, with KSAs related to system effectiveness and reliability in addition to the traditional foci on individual performance. Educational needs assessments have been published,³³ and faculty are beginning to address safety issues in new ways, such as medication errors involving students.^{34,35} New graduates who develop the KSAs will know about human factors and safety design principles, understand the importance of error reporting and safety cultures, and value vigilance and cross-monitoring among patients, families, and members of the health care team.

Informatics

In the QSEN survey¹⁷ as well as another recent survey, where the topic was solely about informatics,³⁶ it is clear that nursing faculty are uncertain about what and how to teach about informatics. Yet health professionals and patients will rely increasingly on information technology to communicate, manage knowledge, mitigate error, and support decision-making.^{37,38} The QSEN faculty and advisory board members argued that basic informatics KSAs were essential for developing the other 5 QSEN competencies. New graduates who develop the KSAs in informatics will be able to participate in the design, selection, and evaluation of information technologies used in the support of patient care. They will learn to navigate an electronic health record and experiment with communication technologies to support coordination and safe, effective transitions in care.

SUMMARY

At the core of nursing lies incredible historical will to ensure quality and safety for patients. Many current endeavors such as the work occurring in the Robert Wood Johnson Foundation-sponsored project, *Transforming Care at the Bedside*, demonstrate how quality/safety/improvement work attracts the hearts of nurses, resulting in the “joy in work”⁷ that retains the health care workforce. Attending to the development of QSEN competencies may help nurses—who love the basic work of nursing—love their *jobs*, too.

To assure new graduate competencies in patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics, all of nursing education must embrace the need for change. These competencies cannot be mastered through a didactic approach nor developed in a single course or web-based module. Every clinical instructor will have to engage differently with the inter-professional team on patient care units where they are teaching. Simulation cases will include components that address the QSEN competencies. Reflective papers and case studies will be used to deepen understanding of the values and attitudes required for quality and safety work. By the time this article is published, the www.qsen.org Website will be populated with dozens of beginning ideas for teaching the development of the QSEN competencies in classrooms, clinical settings, and skills/simulation labs. We invite the profession to use, critique, and continuously improve the KSAs, submit strategies to the QSEN Website, and share what is learned as we attempt, each in our own way, to create a future where nurses are prepared with the competencies called for in the IOM *Health Professions Education*¹ report. As the most trusted profession, we owe ourselves and our patients nothing less.

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