## CE Test   Test ID A0918023: Competence and Certification of Registered Nurses and Safety of Patients in Intensive Care Units.

*Learning objectives:* 1. Describe the underlying premises of the certification process. 2. Understand the relationship between nursing specialty certification and competence. 3. Recognize the findings of the study as they relate to the relationship of certification of intensive care unit nurses and patient outcomes.

**1. Which of the following statements is true regarding harm and risk of harm in the intensive care unit (ICU) patient population?**
a. Both adverse events and near-misses are relatively common in the ICU patient population.
b. Adverse events are common, whereas near misses are rare in the ICU patient population.
c. Adverse events and near-misses are rarely preventable in the ICU patient population.
d. Risk of harm identified as near-misses are rarely multidisciplinary in nature.

**2. Which of the following human-related factors discussed by the authors often contribute to adverse events in ICU patients?**
a. Disease process and age of the patient
b. Skill and knowledge of the clinician
c. Number of physician specialists consulting on the patient
d. Sex of patient and type of insurance coverage

**3. Which of the following statements is true regarding the relationship of nursing specialty certification and competence?**
a. Board certification demonstrates that the nurse has knowledge and experience within a given specialty.
b. Specialty certification is the only method of validating a clinician's knowledge.
c. The link between nursing competence and specialty certification has not yet been examined.
d. A clear link between nursing specialty certification and competence has been well established.

**4. In Valentin et al, which of the 5 representative categories of adverse events was observed most often?**
a. Medication errors
b. Indwelling lines, catheters, and drains
c. Airways
d. Alarm failures

**5. Which of the following may bias the rates of adverse events calculated from self-reporting data?**
a. Selective reporting and inability to identify populations at risk
b. Demographic information on the patient
c. Number of participants and years of experience in nursing
d. Penalties associated with medication administration errors

**6. After analyzing self-reported data from 2 systems, which of the following human-related categories was identified as frequently contributing to harm of the ICU patient?**
a. Clinicians' knowledge and use of protocols
b. Involvement of staff in bedside research
c. Lack of predictability of course of illness
d. Age and sex of clinician

**7. Which of the following best describes the underlying concepts of the certification process?**
a. Validation of cognitive knowledge
b. Demonstration of clinical expertise
c. Demonstration of clinical competency
d. None of the above is true

**8. Which of the following were adverse events evaluated by the researchers in this study?**
a. Falls and medication administration errors
b. Respiratory failure
c. Wound and *Clostridium difficile* infections
d. Equipment failure

**9. Which of the following best describes the hypothesis of the researchers?**
a. A direct relationship exists between each type of adverse event and proportion of certified nurses in each unit.
b. Certified nurses will exhibit fewer medication errors compared with uncertified nurses.
c. An inverse relationship exists between the proportion of certified nurses and each type of adverse event in that unit.
d. No relationship exists between adverse events and the number of certified nurses on the unit.

**10. Which of the following best describes the characteristics of the ICUs from which the study data were collected?**
a. Combined 10-bed pediatric and adult ICU in a 200-bed hospital
b. Adult 15-bed medical-surgical ICU in a 350-bed hospital
c. Adult 25-bed trauma ICU in a 550-bed hospital
d. Adult 6-bed coronary care unit in a 150-bed hospital

**11. Which of the following patients is most indicative of the population of patients served by ICUs evaluated in this study?**
a. 18-year-old African American, uninsured male
b. 52-year-old white, insured female
c. 68-year-old white, insured male
d. 25-year-old Hispanic, uninsured female

**12. This study was the first to use quantitative data to explore which of the following?**
a. Nurses' competence as measured by certification status and patients' outcomes
b. Clinical competence as measured by decreased number of adverse events
c. Patient outcomes in the ICU
d. Nurses' competence as measured by years of ICU experience and adverse events

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**Test ID: A0918023**  Contact hours: 1.0  Form expires: March 1, 2011. **Test Answers:** Mark only one box for your answer to each question. You may photocopy this form.

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
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Fee: AACN members, $0; nonmembers, $10  Passing score: 9 Correct (75%)  Category: 0  Synergy CERP A  Test writers: Kim Baxter, RN, MSN, CS-FNP

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**Program evaluation**

|                                           | Yes | No |
|-------------------------------------------|-----|----|
| Objective 1 was met                       | ❑   | ❑  |
| Objective 2 was met                       | ❑   | ❑  |
| Objective 3 was met                       | ❑   | ❑  |
| Content was relevant to my nursing practice | ❑ | ❑  |
| My expectations were met                  | ❑   | ❑  |
| This method of CE is effective for this content | ❑ | ❑ |

The level of difficulty of this test was:
❑ easy  ❑ medium  ❑ difficult
To complete this program, it took me _____ hours/minutes.

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City _____  State ____ ZIP_____
Country _____ Phone_____ E-mail address _____
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RN License #2 _____  State _____
Payment by: ❑ Visa  ❑ M/C  ❑ AMEX  ❑ Check
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# Evidence-Based Review and Discussion Points

By Ruth Kleinpell, RN, PhD

**Evidence-Based Review** (EBR) is the journal club feature in the *American Journal of Critical Care.* In a journal club, attendees review and critique published research articles: an important first step toward integrating evidence-based practice into patient care. General and specific questions such as those outlined in the "Discussion Points" box aid journal club participants in probing the quality of the research study, the appropriateness of the study design and methods, the validity of the conclusions, and the implications of the article for clinical practice. When critically appraising this issue's EBR article, found on pp 106-114, consider the questions and discussion points outlined in the "Discussion Points" box. Visit www.ajcconline.org to discuss the article online.

Certification is a recognized method of assessing competency, knowledge, and skills. Specialty certification in nursing has been linked to patient satisfaction, nurse staffing, and retention rates. This study examines the connection between certification and patient safety. Using data from a previous study, a secondary data analysis of 48 intensive care units (ICUs) from 29 hospitals examined the relationship between certification rates and rates of medication administration errors, falls, skin breakdown, central line infection rates, urinary tract infection, and bloodstream infection rates. The results revealed that the unit proportion of certified registered nurses was inversely related to falls—that means the higher the proportion of certified registered nurses, the lower the fall rate on a unit. The hours of nursing care were associated with more medication administration errors, and having more years of nursing experience was associated with lower urinary tract infection rates.

Not all sites reported infection rates, making the results difficult to generalize. "Other than reported rates of medication administration errors and falls, hospitals varied in types of adverse events reported, making it difficult to compare reporting patterns for any one type of outcome," said Deborah Kendall-Gallagher, RN, MS, JD, PhD, lead author on this EBR article.

This secondary data analysis provides preliminary information that indicates a need for further study to explore the relationship between nursing specialty certification and patient safety outcomes.

### Information From the Authors

Kendall-Gallagher reports that the study was conducted to further explore factors that

## Investigator Spotlight

This feature briefly describes the personal journey and background story of the EBR article's lead investigators, discussing the circumstances that led them to undertake the line of inquiry represented in the research article featured in this issue.



**Kendall-Gallagher**

Deborah Kendall-Gallagher sees this study as a first step to understanding why the level of registered nurse competency is essential to prevent patient harm in the intensive care unit. "My guiding principle is 'First do no harm.' I realized the importance of this early in my nursing career when I identified a near-miss that involved failure to recognize an evolving paralytic ileus," she said.

Kendall-Gallagher noted that she has an ongoing professional desire to understand factors that affect the quality of nursing care. This desire has broadened her focus from the bedside to an examination of system issues that influence registered nurse competency.

In this study, she selected registered nurse specialty certification as a proxy for nurse competency. "The conceptual and methodological challenges of using this approach proved formidable," said Kendall-Gallagher. Moving an idea from conception to publication is challenging, but rewarding. However, she noted, "Choosing a 'hot button' topic that needs to be addressed but involves multiple stakeholders with diversified interests is not for the weak of heart."

During the conceptualization phase, she found it was important to recognize contextual issues that might influence, directly or indirectly, the research topic. "Studying registered nurse competency in a system that has 3 levels of entry into practice and no standardized postgraduation clinical training introduces, by its very design, variability into practice," she said.

She advises budding researchers to find a good mentor. "The invaluable mentoring and expertise of Dr Mary Blegen, my coauthor and dissertation committee member, made the article possible," she explained.

While doing the research she learned the importance of using an appropriate study design, to budget enough time to learn new statistical procedures, and to seek statistical expertise when needed. She noted that reviewers' comments were especially helpful in articulating how nurse competency was conceptualized and measured. Finally, she said, "If you believe in an idea, persevere. Registered nurse competency matters."

impact patient safety in the ICU related to nursing certification rates. She said, "Research indicates that patient harm results from an interaction among multiple system and human factors. In nursing, a large body of evidence exists regarding the impact of system factors, such as staffing levels, on patient safety; little is known about the human factors side of the equation. Specialty certification validates a specific level of cognitive knowledge. The ICU environment is ideal for exploring the relationship between certification and patient safety for 2 reasons: there is an expanding body of knowledge related to error causation in ICUs, and there is sufficient variability in the percentage of registered nurses with specialty certification in a unit."

Kendall-Gallagher explained that the secondary data analysis used information collected in a previous study conducted in 2000 that used a 2-stage sampling strategy to obtain a random, geographically representative, sample of hospitals with 200 or more beds (NINR NR0104937). In the first stage, geographic mapping software was used in conjunction with American Hospital Association data to produce geographically representative clusters of hospitals within the United States. In the second stage, a random sample of hospitals was selected from each cluster pending organizational approval of participation in the study.

## Implications for Practice

Findings from the study suggest a link between the level of clinical nursing expertise at the bedside and the risk of patient harm. Although limited, the study results provide a clue as to how registered nurse specialty certification may function as a viable method for validating the specific level of cognitive knowledge required of ICU nurses. As recent evidence suggests,[1] however, combining validated cognitive knowledge through specialty certification with demonstrated performance may enhance the value of specialty certification as the "gold standard" for clinicians.

Kendall-Gallagher concludes that *AJCC*'s readers can best use information from the study as initial evidence of the value of certification. Information from this study can best be used when considered in the context of what is known about the interrelationship among nurse staffing, work environment, and patient

safety in ICUs. Based on research, we know that appropriate staffing and positive work environments impact quality of nursing care. We also know from emerging research on error occurrence in the ICU that clinicians' knowledge and skill level play a role in preventing or creating risk of harm for patients.

"Registered nurse specialty certification is one approach for beginning the needed exploration of how ICU nurses' level of clinical knowledge impacts quality at the point of care. Greater understanding of the interrelationship of these factors could maximize patient safety while reducing cost of care," noted Kendall-Gallagher.

REFERENCES
1. Henrichs B, Avidan M, Murray D, et al. Performance of certified registered nurse anesthetists and anesthesiologists in a simulation based skills assessment. *Anesth Analg*. 2008;108(1):255-262.

**eLetters**
Now that you've read the EBR article and accompanying features, discuss them with colleagues. To begin an online discussion using eLetters, just visit **www.ajcconline.org**, select the article in its full-text or PDF form from the table of contents, and click "Respond to This Article" from the list on the right side of the screen. All eLetters must be approved by the journal's coeditors prior to publication.

## Discussion Points

**A. Description of the Study**
❏ What was the purpose of the research?
❏ Why is the problem significant to nursing?

**B. Literature Evaluation**
❏ What previous research on nursing certification has been conducted?
❏ What has prior research on the value of nursing certification shown?

**C. Sample**
❏ How were the data collection sites chosen for this secondary data analysis?

**D. Methods and Design**
❏ How often were data collected on the study variables in the original research study?
❏ What 6 types of adverse events related to nursing care in the ICU were explored in this secondary data analysis?

**E. Results**
❏ What study variables were related to unit nursing certification rates?
❏ What study variables were related to RN education?
❏ What study variables were related to RN experience?

**F. Clinical Significance**
❏ What are the clinical implications of this study?
❏ How does the study extend the evidence base on the value of nursing certification?

**About the Author**
**Ruth Kleinpell** is contributing editor of the Evidence-Based Review section. She is a professor in the Rush University College of Nursing, a teacher-practitioner at the Rush University Medical Center, and a nurse practitioner with Our Lady of the Resurrection Medical Center, Chicago, Illinois.