CE 2.0 ANCC Contact Hours

# Verification of Resident Bedside-Procedure Competency by Intensive Care Nursing Staff

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## ABSTRACT

**Background:** Recent efforts by the Accreditation Council for Graduate Medical Education to standardize resident education and demonstrate objective clinical proficiency have led toward more accurate documentation of resident competencies. Particularly with regard to bedside procedures, hospitals are now requiring certification of competency before allowing a provider to perform them independently. The current system at our institution uses a time-consuming, online verification system. This study provided an alternative method through an identification card with a list of bedside procedures. Our aim was an easier verification method for nurses, allowing fewer delays of bedside procedures and more time for nursing to patient care. **Methods:** We performed a prospective, controlled study, using general surgical residents and surgical intensive care nurses. Subjects performed an initial survey of their experience with the current online system in place to identify resident bedside procedure competency. Phase I involved educating the subjects about this current system followed by another survey. Phase II involved introducing our proficiency card. After 3 months, we conducted a final survey to evaluate opinions on the proficiency card, comparing it with the online verification method. **Results:** Nursing postintervention responses indicated that significantly less time was required to validate a resident's proficiency ($P = .04$). Prior to the introduction of the proficiency card, only 15% of nurses reported a verification time of 5 minutes or less, compared with 64% postintervention. In addition, nurses rated the card validation as an easier, more efficient method of verification ($P = .02$). **Conclusions:** We believe that its continued use will not only improve the adherence to a mandatory hospital policy but also result in a less-cumbersome verification process, allowing more time for physician and nurse-to-patient care.

## Key Words

ICU, Online verification, Proficiency card, Resident competency, Resident proficiency, Surgical bedside procedures

Recent efforts by the Accreditation Council for Graduate Medical Education to standardize resident education and demonstrate objective clinical proficiency have led toward more accurate documentation of resident competencies.[1,2] Particularly with regard to bedside procedures, hospitals are now requiring a data bank showing certification of competency before allowing a provider to perform these procedures independently.[3] Although the importance of verifying resident procedural competency is well accepted, no standardized method of validation currently exists.[4] Our institution uses an online system allowing nurses to verify residents credentialed to perform procedures independently. Though important and essential to patient safety, this is a very time-consuming, cumbersome process that restricts nursing-to-patient care during potentially critical moments.

This study provided an alternative method for nursing staff to verify competency through an identification card with a list of bedside procedures (see the Figure). General surgery residents acquired a mark next to a particular procedure on their "proficiency punch card" upon their completion of a departmental-instituted credentialing process. Using a series of online survey responses by the involved intensive care unit (ICU) nursing staff and surgical residents, we then compared our current online institutional system with the new card system. We hypothesized that our proficiency card would provide an easier, more practical verification method for the nursing staff compared with the current system at our institution, allowing fewer delays of clinically indicated bedside procedures and improving patient care.

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The authors declare no conflicts of interest.

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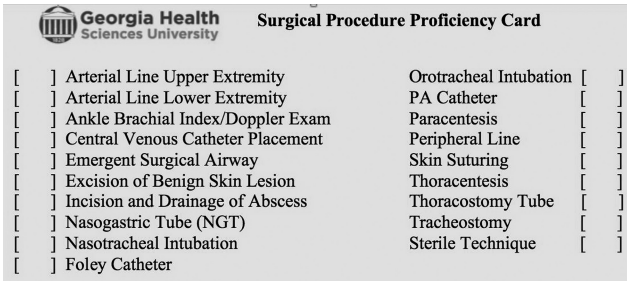

Georgia Health Sciences University

**Surgical Procedure Proficiency Card**

| | | | |
|---|---|---|---|
| [ ] | Arterial Line Upper Extremity | Orotracheal Intubation | [ ] |
| [ ] | Arterial Line Lower Extremity | PA Catheter | [ ] |
| [ ] | Ankle Brachial Index/Doppler Exam | Paracentesis | [ ] |
| [ ] | Central Venous Catheter Placement | Peripheral Line | [ ] |
| [ ] | Emergent Surgical Airway | Skin Suturing | [ ] |
| [ ] | Excision of Benign Skin Lesion | Thoracentesis | [ ] |
| [ ] | Incision and Drainage of Abscess | Thoracostomy Tube | [ ] |
| [ ] | Nasogastric Tube (NGT) | Tracheostomy | [ ] |
| [ ] | Nasotracheal Intubation | Sterile Technique | [ ] |
| [ ] | Foley Catheter | | |

**Figure.** Our "Proficiency Card" with commonly performed bedside procedures were distributed to each resident subject. Upon completing a credentialing process outlined by the Department of Surgery, residents had the particular procedure "punched" on their card, verifying their competency.

## METHODS

The current online system at our institution requires nurses to "log on" to a central institutional Web site to verify residents credentialed to perform procedures without senior-level resident or faculty supervision. Although important to patient care, this method has its limitations. First, nurses must be willing to go through this cumbersome process, since they are not required to "chart" this verification prior to the procedure. In addition, this requires the Web site to be up-to-date, given that newly credentialed residents will no doubt be eager to perform procedures immediately without supervision.

Our new "proficiency card" addressed both of these issues, as residents carried punch cards attached to their hospital ID to demonstrate proficiency upon completion of a procedure-specific curriculum outlined by the Department of Surgery.

We performed an institutional review board–approved, prospective controlled study, using general surgical residents and surgical intensive care nursing staff from Georgia Regents University as subjects. We included all general surgery residents in this study, with the exception of 2 involved in the study. We chose to limit the study to general surgery residents, since residents from other departments were not required to complete the credentialing process developed by our surgical department to achieve "proficiency." This curriculum involved sessions in the skills labs, didactic lectures, practicums with cadavers, and a minimum number requirement of supervised procedures on inpatients by senior-level residents and/or faculty.

Prior to participation in the study, all subjects were voluntarily consented and informed about withdrawing from the study at any time or requesting the removal of their data from the study. This left 23/25 general surgery residents as eligible subjects, not all of whom completed the final portion of the study. In a similar fashion, all nurses in the surgical and shock trauma intensive care units were included in the study, on the basis of their willingness to participate. We chose the ICU (rather than particular surgical floors) because of the higher rate and need for more bedside procedures. We chose the surgical ICUs, given the good relationship between the nurses and surgical residents to foster a collaborate effort to complete the study. Two nurses were excluded, as they were a part of the study design. Aside from not completing all surveys, there were no other exclusion criteria.

Although all bedside procedures were performed on patients in our surgical intensive care units, the study did affect the need for procedures, the procedures themselves, or patient care in any way. Thus, patients were consented for the procedure only in accordance with hospital guidelines. We used a randomly assigned number to identify all nursing and resident subjects rather than personal information. These numbers were noted on the survey responses for purposes of data analysis. For the resident subjects, they were also placed on their proficiency card to ensure proper card replacement in the event of a lost card. The numbers were accessible only by a single member of the study's team to protect the integrity of the study.

All participating subjects performed an initial survey of their experience with the current online system in place at our institution to identify resident bedside procedure competency. Following this initial survey, we implemented Phase I of this study. This involved educating the ICU nursing staff about the current system to ensure that subjects understood the current hospital resources available to them. We concluded Phase I after a 3-month period, allowing the nursing subjects adequate time to use the current online system. This "preintervention" phase was followed by a survey to evaluate their opinions regarding the online process as an effective verification method. Phase II involved introducing our "proficiency card" to the same subjects in Phase I, allowing 3 months for its use and implementation. At the end of Phase II, we performed "postintervention" surveys for both the nursing staff and residents to evaluate their opinions on the practicality of the card and its efficiency as a means of verification. The surveys also included questions comparing this proficiency card with the current online system. As previously stated, general surgery residents were not signed off on procedures (ie, their card was not "punched") until they completed the curriculum as outlined by the Department of Surgery.

All surveys were performed on Survey Monkey, an online survey Web site, to prevent lost or misplaced data. This Web site is password protected and provided an easy, secure method for nurses to take the survey on their own time in order to avoid compromising patient care. Surveys were accessed by members of our research group only, used specifically for this study, and destroyed upon completion of the data analysis. Data were stored

**TABLE 1 Nursing Opinion Regarding Time Required to Validate a Resident's Proficiency Before Performing an ICU Bedside Procedure**

| How Long to Validate a Resident's Proficiency | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rating System | < 1 min | 1-5 min | 6-10 min | 11-15 min | >15 min | I Do Not Check | Not Applicable |
| On line | 1 | 2 | 3 | 0 | 1 | 9 | 4 |
| Card system | 4 | 3 | 1 | 1 | 0 | 0 | 2 |

*Abbreviation: ICU, intensive care unit.*

on password-protected computers in a locked office and transferred to a password-protected research network.

Data were collected pre- and postintervention by using a series of questions rated on a 5-point Likert scale. Data analysis was performed with the help of the Statistics Department by comparing these responses from all subjects before and after Phases I and II of the study. Given the ordinal nature of the data, analysis involved frequency counts and nonparametric statistics. Since the data were qualitative, resident responses were anonymous. We did not identify the number of procedures performed, choosing instead to focus on the potential benefit of our proficiency card and its effect on the efficiency in helping nurses verify resident competency.

## RESULTS

A total of 17 of 23 eligible general surgery residents voluntarily participated in the "preintervention" survey, with 2 residents excluded because of study participation. Sixteen of the 17 residents in Phase I subsequently completed the survey following Phase II (application of our proficiency card) and their responses used for data calculation. Of the 20 ICU nurses who completed the "preintervention" survey prior to Phase I, 11 subjects completed the survey following Phase II and were included in the data analysis. Reasons for not completing Phase II of the study were not investigated further, as participation was completely voluntary. Overall, the data indicated that the majority of both residents and nurses preferred the card system compared with the online system. When asked postintervention (after Phase II), 69% (11/16) of residents and 54% (6/11) of nurses chose the card system.

Table 1 presents the nurses' responses pre- and postintervention in response to the question: "On average how long does it take you to validate a resident's proficiency?" A chi-square analysis of these data revealed a significant relationship between type of verification method and time to complete the verification process, $\chi^2(6, N = 31) = 13.1$, $P < .04$. In other words, nurses were more likely to report spending less time to complete the verification using the "proficiency card" compared with the online method. Only 3 of 20 nurses reported that verification required less than 5 minutes on the pretest survey (online verification method) versus 7 of 11 postintervention ("proficiency card" method). Of note, 45% (9/20) of the nurses reported not checking resident competency when required to use the online system compared with zero percent with the proficiency card.

Table 2 presents the nurses' "ease of use" ratings. In other words, it demonstrates the practicality of the proficiency card as a less-cumbersome verification method. Again, a chi-square analysis showed that nurses were significantly more likely to agree that the proficiency card was easier to use than the online method ($\chi^2$ [4, N = 30] = 11.5, $P < .02$). Of the 19 nursing responses for the online system, 13 were negative, 6 were neutral, and 0 were positive. In contrast, of the 11 ratings of the card system, only 2 were negative, while 4 were positive and 5 were neutral.

## DISCUSSION

Surgical residency programs use various inanimate methods to teach residents procedures, including video feedback, skills lab sessions, and surgical simulators.[5-7] These are widely accepted as methods to validate resident

**TABLE 2 Nursing Opinion Regarding the "Ease of Use" of the Current Online Verification System Versus Our Proficiency Card System**

| Rate Your Level of Agreement: The Proficiency Validation System Is Easy to Use | | | | | |
|---|---|---|---|---|---|
| Rating System | Strongly Disagree | Disagree | Neutral | Strongly Agree | Absolutely Agree |
| On line | 7 | 6 | 6 | 0 | 0 |
| Card system | 2 | 0 | 5 | 2 | 2 |

proficiency, with objective scoring systems used to prevent self-assessment bias and operating room distractions.[8,9]

However, no current standardized method exists for nurses to validate this competency. With an increasing emphasis placed on hospital documentation, nurses and physicians have less face-to-face time with patients. This highlights the importance of collaboration between health care providers to maximize this patient care time and improve care. As more hospitals require nurses to verify resident competency before performing a bedside procedure independently, efforts to produce an efficient method will be of the utmost importance, especially given that many procedures are performed during critical times in the patient's hospital course.

Our hospital uses an online institutional Web site for this verification, a cumbersome method for nurses that distracts from their time with patients during stressful times. Whether in the surgical ICU or shock trauma unit, these patients require around-the-clock care and frequently have an acute change in their condition. Our "proficiency card" provided an easier, more efficient way for nurses to verify resident competency and resulted in quicker verification times for nurses. In addition, both residents and nursing staff preferred the card system. We believe that its continued use will not only improve the adherence to a mandatory hospital policy but also result in more time for physicians and nurses to focus on patients and improve their overall quality of care.

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