One of the greatest challenges in clinical nursing education is providing an orientation program that meets the needs of critical care nurses with various backgrounds and levels of experience within a relevant and stimulating format. Since the 1990s, a major shift has occurred within the culture of intensive care units (ICUs) to employ, orient, and mentor new graduate nurses. Formerly, after graduation, the standard progression for all critical care nurses was at least 1 year of medical-surgical experience in a general care area. The gradual transition from medical-surgical nursing into the critical care environment that once existed has changed in response to the dwindling supply of nurses in the workforce. Concurrently, the population of patients in ICUs has increased, the severity of illness has increased, and the length of stay has decreased. Critical care educators are challenged to accommodate graduate nurses into ICUs while maintaining competence and ensuring the highest quality of care. In this article, we describe how we faced that challenge and exceeded all expectations.

Assessment of Orientation

The previous program of orientation for critical care nurses at Northwestern Memorial Hospital, Chicago, Illinois, consisted of two primary methods: classroom education and clinical instruction with a preceptor. Nurses were hired into any of our 5 ICUs: medical, surgical, cardiothoracic, neurosciences, and coronary care. The length of orientation ranged from 8 to 12 weeks, depending on the nurse's number of years in nursing and level of experience.

Each new nurse was enrolled in the Critical Care Course, a 3½ day course that included lectures covering a basic review of cardiac dysrhythmias, pulmonary disorders, renal failure, interpretation of blood gas analyses, and monitoring hemodynamic parameters. Before implementation of our new critical care orientation program, most ICUs did not accept new graduates. All new nurses, regardless of experience, were required to either attend the classes offered every 2 months or test out of the classes via written examination. Task competency was
validated at the bedside by a preceptor, who used a standardized checklist. Select units also provided classes that focused on the units’ specific population of patients. Written materials were made available to the orientees, but no designated time outside of the orientees’ assigned orientation hours for patients’ care was given to review and discuss these materials.

Because of numerous concerns about content and consistency of classes as well as the need to promote critical-thinking skills in the orientees, the managers and staff educators requested support from Northwestern Memorial Academy, the training and development section of the human resources department. The academy, in turn, asked the clinical nurse specialist (CNS) for the department of respiratory care, who held dual certification as a critical care CNS and in continuing education and staff development, to assess the program and recommend revisions.

Assessment of the Critical Care Orientation Program

In our traditional approach, when a new nurse was hired, the manager of the ICU was disconnected from the educational part of the orientation and focused on the departmental orientation from a human resource perspective. The staff educator took on the bulk of the role of determining compliance with the mandatory hospital-wide educational programs, the unit-based classes, online learning modules, scheduling of orientation, and follow-up. The preceptor’s role was to “shepherd” the orientee through the critical care orientation and ensure completion of the orientee’s competency-based skills lists.

A comprehensive assessment of the critical care orientation was performed during the last quarter of 2003 and into the first quarter of 2004. The CNS identified 3 primary areas of inconsistencies in our previous orientation program: instructional reliability, teaching materials, and scheduling. We defined instructional reliability as the ability of 2 different instructors to teach an...
identical session with equal results. In other words, participants who attended identical sessions taught by different instructors should have the same understanding or grasp of the material. However, we found that equal results were not the case. Teaching materials consisted primarily of standardized PowerPoint presentations, and sometimes outdated written materials were used. Occasionally, instructors (usually the staff educators) were not available to teach scheduled classes because of unit staffing needs and classes had to be canceled. Because classes were offered bimonthly, they did not always coincide with the start of orientation sessions; therefore, new nurses were inconsistently scheduled for these classes.

In addition to inspecting the teaching materials used in the critical care classes, the CNS evaluated each instructor’s teaching skills and the methods used to elicit class participation. She assessed each instructor’s ability to present the information, noting whether he or she simply read from notes or had a more active role in interacting with the participants. The CNS also taught sessions of the Critical Care Course, which allowed her to evaluate the teaching materials from the instructor’s perspective. Next, the CNS developed 4 separate assessment tools, one each for new orientees, preceptors, the unit-based staff educators, and the nurse managers. These assessment tools were based on her experience with the development and evaluation of previous orientation programs. The tools consisted primarily of open-ended questions and were distributed to each of the 4 groups.

The staff educators, managers, and preceptors were asked about their perceptions regarding the amount of time spent preparing to orient new staff, new nurses’ level of motivation to learn, barriers to the effectiveness of preceptors, resources to improve function of preceptors, preceptors’ satisfaction, helpfulness of the current critical care orientation classes in introducing critical care concepts, level of satisfaction with the critical care orientation program itself, and suggestions for improvement. In addition, recent orientees were asked about how much time they spent in classroom education, in clinical orientation with a preceptor, and in self-directed activities. They were also asked about how their learning needs were assessed, whether they met regularly with the staff educators to discuss goals, the orientees’ preferred learning methods, and whether the orientees accomplished their goals of orientation. Tables 1 through 4 list the specific questions asked of each group. Many of these questions were duplicated throughout the groups to provide a comprehensive picture of the current state of the orientation process.

To identify repetitive themes, the CNS analyzed the results of these questionnaires and the course evaluations of the previous year’s critical care orientation program. A proposal was submitted in early 2004 with recommendations for improvement. The areas to be addressed included the previously discussed inconsistencies in teaching methods, scheduling, and education.

### Staff Educators’ Concerns

Results from the staff educators indicated inconsistencies in the way the program was implemented from ICU to ICU. In some units, orientees were allowed to test out of classes if they had critical care experience; in other units, they were required to

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**Table 1 Questions posed to staff educators**

1. How many preceptors are on your unit?
2. How often are they expected to be a preceptor?
3. On the average, how much time do they spend in preparation for orientation (eg, developing teaching materials, searching Web sites)?
4. What is the experience level of most of your orientees (new graduate, experienced non–critical care, experienced critical care)?
5. How motivated to learn are the new employees?
6. What barriers or obstacles hinder the preceptor’s ability to function effectively?
7. How helpful is the critical care orientation course in introducing critical care concepts?
8. Do your preceptors seem satisfied with the precepting experience? Why or why not?
9. What other resources would help them function as effective preceptors?
10. On a scale of 0-10, how satisfied are you with the clinical orientation process? (0 = not at all satisfied; 10 = totally satisfied)
11. On a scale of 0-10, how satisfied are you with the critical care orientation course as part of the orientation process? (0 = not at all satisfied; 10 = totally satisfied)
12. If the current critical care orientation course is revised, what suggestions do you have for improvement?

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attend all classes regardless of their experience level. In addition, the criteria for competence varied from unit to unit. For example, in one unit, competence was assumed once an orientee had achieved an acceptable score on the posttest, whereas in other units, skills checklists were used, but not consistently.

Staff educators were also concerned that orientees sometimes needed more time to apply the information in the clinical setting. In addition, no formal method was available to determine readiness to practice independently in an ICU without direct supervision.

The CNS also noted missed opportunities to assess the critical-thinking skills of the orientees and inconsistency in the way didactic content was taught. Experienced classroom instructors knew how to facilitate discussion on a topic to ensure that the material was understood; inexperienced instructors were unable to do so.

Preceptors’ Concerns

Results from the preceptors’ assessments revealed several concerns. These themes included variability or inconsistencies in the skills of the preceptors and negative perceptions of the precepting experience. Preceptors were selected on the basis of “who did it last,” rather than on the basis of which person was the most appropriate. Selection was also based on schedule availability, years of work on the unit, and previous experience as a preceptor.

Preceptors’ teaching skills tended to be highly variable. The preceptor curriculum, a course that is suggested but not mandatory for preceptors, consists of six 2-hour sessions offered in a 3-month period. The classes include assessment and feedback, effective communication, critical thinking, new learner issues, planning instruction, and the challenging learner. Although the in-house preceptor curriculum includes discussion of instructional resources, not all preceptors attended these sessions, so some preceptors had more information on teaching than others did.
Preceptors perceived a lack of support for the orientation process, a situation that led to nurses being unwilling to serve as preceptors. This culture created a lack of qualified staff available to act as preceptors and a surplus of staff unwilling to act in this role. In addition, preceptors felt overwhelmed because of the following perceptions:

- Valuable time was wasted teaching items that the graduate nurses should have learned in school
- Orientees needed better mastery of certain tasks, ability to explain rationale, and time management skills
- Some orientees chose the critical care environment because they mistakenly thought that patient assignment ratios would be more manageable
- Orientees' competence or quality of work tended to be highly variable
- Orientees seemed to lack initiative to review provided materials outside of work hours

Orientees' Concerns

Orientees also identified several areas of dissatisfaction with the orientation process. These areas included scheduling issues, variable skills among preceptors, and the expected concerns of feeling overwhelmed. Not having classes scheduled at the beginning of orientation was a source of frustration because theory did not correlate with clinical experiences in a timely way. Application of critical-thinking skills depended on each preceptor's skills and the preceptor's motivation to teach. Appropriate experiences with patients often were not available within the assigned orientation period. The multitude of tasks and responsibilities seemed overwhelming to learn in only an 8- to 12-week period, particularly because no time was allotted outside of hours for patient care to complete the didactic material.

Toward a New Model for Critical Care Orientation

The assessment of the old program provided the impetus for implementing a major revision of the critical care orientation program, resulting in the creation of a new model for orientation. The primary purpose of the new program is to provide each new nurse the skills necessary to function independently and competently in the ICU. We set out to design a program that would provide preceptors the resources and materials necessary to ensure consistent implementation of a quality orientation program from unit to unit and a program that would include validation of competence and assessment of critical-thinking skills. Finally, teaching materials that were consistent and that reflected current evidence-based practice had to be developed.

We needed to address the inconsistencies and concerns associated with the previous program: inconsistency in teaching materials, scheduling, instructional reliability, validation of competence, assessment of critical-thinking skills, outdated materials, and the areas of
dissatisfaction among the preceptors and orientees. This model also had to address the learning needs of nurses with different levels of experience.

A new model of critical care orientation was created that draws on Benner’s “novice to expert” model. This model has 5 levels of mastery: novice, advanced beginner, competent, proficient, and expert. Within this framework are 3 aspects of skill acquisition that we used to guide the critical care orientation curriculum and help nurses adjust to their role in the ICU:

1. Movement from reliance on abstract principles to use of past experiences
2. Change in the learner’s perception of the situation in terms of equally relevant bits of information to a complete whole in which only certain parts are relevant
3. Passage from detached observer to involved performer

For new ICU nurses to gain a sense of confidence and demonstrate competence in complex nursing skills, the program must include time for preparation, resources rich in critical care concepts, and practice in real-life or simulated situations. These characteristics give new ICU nurses the best opportunities to practice independently. The foundation of our program provides flexibility for nurses entering the ICU regardless of their previous knowledge or performance level. In supporting the foundation of our program, we provided preceptors with the necessary resources and materials to ensure that a quality orientation program is implemented consistently from unit to unit.

Our new model builds on the learner’s experiences, provides a variety of learning methods, uses task-oriented problem-solving approaches to learning, and uses self-directed learning as an option when advantageous. These methods encompass Benner’s model and the 3 aspects of skill performance, therefore encouraging nurses to advance to a higher level of clinical aptitude.

The new model of critical care orientation was developed first (Figure 1). This model has an overarching umbrella that represents the use of a consistent approach to orientation from unit to unit. Our primary theme of critical thinking infused the entire program as it changed from one of traditional pedagogy (teacher-centered methods) to andragogy (adult-centered learning). With adult-learning theory as a framework, the new model builds on a learner’s experiences; provides a variety of learning methods; uses task-oriented, problem-solving approaches to learning; and uses self-directed learning as an option when possible. This model offers constant opportunity for assessment and evaluation of a learner’s ability to apply the knowledge in real and simulated situations.

**Figure 1** New model of critical care orientation.

Abbreviations: CCO, critical care orientation; ECCO, Essentials of Critical Care Orientation; PACEP, Pulmonary Artery Catheter Education Project.

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Our challenge has been to provide stimulating learning experiences for 3 distinct groups: experienced critical care nurses, experienced non–critical care nurses, and graduate nurses. Relevant learning opportunities were planned to meet individual needs. As a result of our efforts, the traditional learning methods of lecture-based classes in combination with assignment to a preceptor have been replaced with a variety of learning methods.

**Learning Methods**

Depending on each nurse’s experience, learning needs are identified in different ways (see the section “Implementation of the Model”). A variety of learning methods are used, depending on the results of these initial assessments. The primary learning methods used in the new approach include online learning, case studies, a human simulator, and clinical time with a preceptor. The staff educator and preceptor determine what other learning methods are appropriate for each orientee. These other methods can include service-based classroom lectures (eg, the neurosciences orientation classes for the nurses working in the neurosciences ICU), quizzes, games, videos, mock events, articles from critical care journals, and demonstration/return demonstration.

**Online Methods**

In our new model, most of the traditional classroom lectures have been replaced with the Web-based learning programs Essentials of Critical Care Orientation (ECCO) and Pulmonary Artery Catheter Education Project (PACEP). ECCO is a comprehensive Web-based learning program developed by the American Association of Critical-Care Nurses and consists of 8 system-based modules: cardiovascular, pulmonary, neurological, renal, endocrine, hematological, gastrointestinal, and multisystem. Each module contains a basic review of anatomy and physiology, assessment, monitoring, diagnostic or invasive procedures, and specific disorders relevant to that body system. A variety of media formats are used in ECCO, including text, audio, video, animation, and tests. The program also includes management oversight ability, in which approved individuals are able to check the progress of the staff, checking the number of modules completed, average scores on tests, and all aspects of orientees’ progress in completion of the modules.

PACEP was designed to provide a free Web-based state-of-the-art educational program on monitoring hemodynamic parameters and using pulmonary artery catheters. PACEP was developed in collaboration with several professional societies: the American Association of Critical-Care Nurses, the American Association of Nurse Anesthetists; the American College of Chest Physicians; the American Society of Anesthesiologists; the American Thoracic Society; the National Heart, Lung, and Blood Institute; the Society of Cardiovascular Anesthesiologists; and the Society of Critical Care Medicine. Topics are divided into 2 levels of difficulty; each topic includes physiological concepts, interpretation of data, waveform analysis, and technical aspects of monitoring hemodynamic parameters. Content includes effects of medications on hemodynamic values, recognizing trends in data, and identifying abnormal hemodynamic profiles such as shock, heart failure, and tamponade.

When a nurse completes both ECCO and PACEP, he or she receives 64 contact hours of continuing education credit. Web-based learning strategies provide current content in a consistent manner that can be reviewed at scheduled times or at the convenience of the user. This arrangement helped us correct one of our concerns, instructional reliability; however, we also needed a method to assess how each orientee applies this information to specific situations. We assess application of the theory learned by reviewing case studies and simulations of real-life experience with the human simulator, which mimics real-life experiences.

**Case Studies**

Case studies are excellent methods for assessing critical-thinking ability. This type of assessment is especially important when assessing the competence of any new nurse. Case studies contain a patient situation, including assessment data, an inherent problem, results, and implications. After being presented with a situation, the participant begins by relaying his or her concerns about potential problems and “talks it through” with the guidance of a leader. The leader, usually a staff educator or an advanced practice nurse, allows the participant to “care for” a patient aloud in the participant’s thoughts, but gives the participant more information along the way. At the end of the exercise, the leader promotes discussion to evaluate the way the participant cared for the patient, including strengths and weaknesses. This feedback allows
participants to learn in a nonthreatening manner.

The case studies were developed by critical care advanced practice nurses and staff educators at Northwestern Memorial Hospital to meet the learning needs of orientees at increasing levels of complexity in order to challenge nurses at all levels of experience. Each case study was developed to illustrate specific teaching points. Table 5 is an example of a case study that can be used independently by an orientee (blank), and Table 6 is a case study that can be used by a preceptor with an orientee (with answers). The latter example includes answers so that the preceptor can coach the orientee toward the correct answers. The orientee is continuously evaluated on his or her ability to discuss the appropriate care within the context of these case studies.

Human Simulator

Many of the case studies are presented in a real-time learning environment. This method allows evaluation of critical thinking by placing the orientees in a more life-like learning environment through the use of a computerized human simulator (Medical Education Technologies, Inc, Sarasota, Florida). This simulator, nicknamed “Cosmo,” is owned by the department of anesthesiology and has been an effective tool in the education of anesthesia residents, who are expected to manage actual patients safely with a very low margin of error. This method allows orientees to learn, and simultaneously the instructor can evaluate the orientees’ response to real-life, real-time patient situations in a risk-free environment. The simulator can be set up to emulate an operating room, an ICU, or a delivery room.

Scenarios were developed by critical care advanced practice nurses and staff educators so that an orientee gains exposure to numerous emergency situations that can occur in the ICU. Simulator scenarios include a dislodged tube in a new versus an older tracheostomy, administration of medication to and synchronized cardioversion of a patient with supraventricular tachycardia, symptomatic bradycardia with external pacing, symptomatic and asymptomatic ventricular tachycardia, resuscitation of a patient from ventricular fibrillation and pulseless electrical activity, and inability to resuscitate a patient from asystole.

Learning with simulator technology is beneficial because the technology can be used to do the following12:

• Provide real-life critical care scenarios
• Allow assessment of performance in a risk-free environment
• Provide immediate feedback on performance evaluation
• Provide an opportunity to evaluate critical thinking in action
• Allow videotaping with feedback on performance
• Offer the opportunity to “stop time” to provide a teachable moment during a scenario

The simulator promotes critical-thinking skills in a real-time environment and assists educators in identifying individual qualities such as motivation and readiness to learn as well as cognitive processes. The result of critical thinking is decision

Table 5 Example of case study, participant version (blank)

Cardiac Case Studies A

A 69-year-old female presented to the ED with c/o severe, substernal chest pain. BP 150/96, HR = 100 irregularly irregular. PMH: dyslipidemia; hypertension (controlled on enalapril); osteoporosis w/ multiple vertebral fractures; GERD. Initial ECG: ST elevation in anterior leads. Patient was taken immediately to cath lab where she underwent emergent cardiac catheterization and PTCA w/ stent. After the procedure she was taken to the CCU, where her stay was unremarkable with no further c/o CP. She was discharged directly from the CCU on the morning of Day 3.

1. What coronary artery was probably stented?
2. What medications does the patient receive post-intracoronary stent?
3. What are nursing routines/orders that must be performed for the post-cath patient to prevent complications?
4. Name four (cardioprotective) drugs that this patient will probably be discharged on and their importance.
5. What information/patient education information would you review with this patient and document on MPET prior to discharge?
6. Although this patient has been on Coumadin [warfarin] for a while because of her atrial fibr, what should you review with her about this drug before she goes home?

Abbreviations: BP, blood pressure; cath, catheterization; CCU, coronary care unit; c/o, complaints of; CP, chest pain; ECG, electrocardiogram; ED, emergency department; fib, fibrillation; GERD, gastroesophageal reflux disease; HR, heart rate; MPET, Multidisciplinary Patient Education Tool; PMH, prior medical history; PTCA, percutaneous transluminal coronary angiography; w/, with.

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making. This type of critical thinking is called “thinking in action” or “reasoning in action.”

These methods also support Benner’s 3 aspects of skill performance. Our method of using case studies, computerized simulations, and other learning tools help learners move from conceptual principles to true-life experiences. These experiences help change the orientees’ perception that each aspect of a patient’s care is not about individual entities, but about the patient as a whole with significant findings. A learner passes from a “detached observer to involved performer” by practicing with a clinical preceptor and compiling pertinent information for problem solving. Our new model offers constant opportunity for assessment and evaluation of an orientee’s ability to apply the knowledge in real and simulated situations.

### Implementation of the Model

#### Experienced Versus Inexperienced Critical Care Nurses

Figure 2 illustrates the 3 separate orientation pathways for critical care nurses with different experience levels: experienced critical care nurses, experienced nurses without critical care experience, and graduate nurses.

All nurses undergo a general nursing orientation during their first week. Table 7 provides information on the content given to all nurses during the first week of orientation.

### Table 6: Example of case study, facilitator version (answers)

**Cardiac Case Studies A: STEMI (anterior)**

A 69-year-old female presented to the ED with c/o severe, substernal chest pain. BP 150/96, HR = 100 irregularly irregular. PMH: dyslipidemia; hypertension (controlled on enalapril); osteoporosis w/ multiple vertebral fractures; GERD. Initial ECG: ST elevation in anterior leads. Patient was taken immediately to cath lab, where she underwent emergent cardiac catheterization and PTCA with stent. Post procedure she was taken to the CCU, where her stay was unremarkable with no further c/o CP. She was discharged directly from the CCU on the morning of Day 3.

1. What coronary artery was probably stented?
   (probably LAD)

2. What medications does the patient receive post-intracoronary stent?
   (Plavix [clopidogrel bisulfate], Reopro [abciximab], non-enteric coated ASA)

3. What are nursing routines/orders that must be performed for the post-cath pt. to prevent complications?
   - Check pulses (DP/PT), VS—per cath lab orders (how do you assess and document pulse checks)
   - Prevent vascular complication at sheath site: sheet tuck to keep leg straight, on bedrest per order, don’t cough, etc.
   - Hydrate, monitor urine output
   - Teach pt about complications, when to call RN/MD (if going home soon), importance of medications
   - If in unit that pulls sheaths, can discuss technique

4. Name four (cardioprotective) drugs that this patient will probably be discharged on and their importance.
   (ASA, BB, ACEI, statin)

5. What information/patient education information would you review with this patient and document on MPET prior to discharge?
   (see if patient has ACS packet from CCU)

6. Although this patient has been on Coumadin [warfarin] for a while because of her atrial fibrillation, what should you review with her about this drug before she goes home?
   - Drug interaction; instruct her to tell all new MDs, health care practitioners she is on Coumadin
   - Consistent diet
   - Limit alcohol intake
   - Know frequency for checking INR (make sure they know terminology)
   - Prevent against falls, trauma—seek medical assistance with injury, bleeding

**Abbreviations**: ACEI, angiotensin-converting enzyme inhibitors; ACS, acute coronary syndrome; ASA, acetylsalicylic acid; BB, β-blockers; BP, blood pressure; cath, catheterization; CCU, coronary care unit; c/o, complaints of; CP, chest pain; DP, dorsalis pedis; ECG, electrocardiogram; ED, emergency department; fib, fibrillation; GERD, gastroesophageal reflux disease; HR, heart rate; INR, international normalized ratio; LAD, left anterior descending artery; MD, physician; MPET, Multidisciplinary Patient Education Tool; PMH, prior medical history; pt, patient; PT, posterior tibial; PTCA, percutaneous transluminal coronary angiography; RN, registered nurse; VS, vital signs; w/, with.

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“other.” Validity for the BKAT-7 was provided through comparison with previous versions of the BKAT and by a 6-member panel of experts who scored items for relevance and current practice. Reliability as indicated by the Cronbach $\alpha$ was .90 for Version 7.0. The BKAT includes 100 questions, and we have found that it takes the average experienced critical care nurse approximately 90 minutes to complete the test.

Our critical care staff educator group determined that an acceptable score on the BKAT is 85%. If the experienced nurse scores 85% or higher on all sections, the nurse advances to unit-specific orientation and no further validation is required. If the score is less than 85% on any section, the educator determines the appropriate corresponding ECCO and/or PACEP module to meet the orientee’s identified learning needs. Then, together with the orientee’s preceptor, the educator adjusts the orientee’s schedule to allow completion of these modules. By the end of orientation, competence is considered validated when the orientee has a score of at least 85% on the corresponding assigned ECCO and/or PACEP module.

**Experienced Non–Critical Care Nurses.** Nurses who have experience in a non–critical care unit begin with both ECCO and PACEP modules to achieve a foundation in the anatomy and physiology, assessment, and monitoring of critically ill patients. This time is balanced by clinical time with the nurses’ preceptors, reading, unit rounds, observations with the multidisciplinary team, and sessions on population-specific topics. Preceptors select clinical experiences on the basis of the content covered that week in ECCO and/or PACEP. Staff educators work with the preceptors to develop a schedule that allows time for these experiences. By the end of orientation, competence for this group is also considered validated.

**Figure 2** Three separate pathways for critical care orientation based on experience of the orientee.

Abbreviations: BKAT, Basic Knowledge Assessment Tool; CCI, Critical Care Institute; ECCO, Essentials of Critical Care Orientation; HOE, Habits of Excellence; ICU, intensive care unit; PACEP, Pulmonary Artery Catheter Education Project.

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when the orientee has a score of at least 85% on all ECCO and PACEP modules.

New Graduate Nurses. Expansion of several of our ICU areas prompted the units’ managers to consider hiring graduate nurses, something that had rarely been done at this institution. These managers approached the Northwestern Memorial Academy to develop a program to support these hiring efforts. After several discussions with the directors, managers, and staff educators from the ICUs, an 8-week program called the Critical Care Institute (CCI) was designed to facilitate the integration and socialization of graduate nurses into the critical care environment. Goals of this program are to ensure basic nursing skill competencies and to support the preceptors in providing critical care information so that the graduate nurses are able to function safely when placed in a critical care environment.

Critical Care Institute

The structure of the CCI is shown in Figure 3; it consists in a series of interrelated modules, each with a focus on a particular body system. The modules, based on the lessons found in ECCO and PACEP, are introduced in the program according to the increasing complexity of that body system as seen in critically ill patients. Each module builds on the knowledge and skills learned in the previous modules; the final module is a culmination of all modules that addresses a patient with multisystem failure. The goal of the CCI is to develop a graduate nurse into a competent advanced beginner.

Integrated within the first 2 weeks of the CCI is the Habits of Excellence program: 5 days of general hospital nursing orientation for all graduate nurses designed specifically to address general issues of patient care. The Habits of Excellence program allows all of the hospital’s graduate nurses to review and safely demonstrate the general

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Table 7 Content reviewed during the first week of hospital orientation for all new nurses (Professional Clinical Orientation)

<table>
<thead>
<tr>
<th>Day 1</th>
<th>General hospital orientation for all new employees</th>
</tr>
</thead>
</table>
| Day 2 | Equipment  
Resource center  
Computerized documentation |
| Day 3 | Infection control  
Safety  
Risk management  
Lifting and moving  
Emergency response  
Blood administration  
Pharmacy  
Respiratory therapy  
Communication  
Organ and tissue donation |
| Day 4 | Intravenous therapy  
Phlebotomy  
Central venous access devices |
| Day 5 | Cardiopulmonary resuscitation (if needed)  
Unit-specific orientation |

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Figure 3 Structure of the Critical Care Institute.

Abbreviations: ECG, electrocardiography; PACEP, Pulmonary Artery Catheter Education Project.

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skills covered in nursing orientation under the guidance of a clinical instructor, who is either one of the staff educators or an experienced staff nurse.

Clinical instructors demonstrate and review skills in a simulated environment during the morning. In the afternoon, they take a small group of graduate nurses out to various patient care areas, enabling practical application of the content presented in the morning session. Traditional unit boundaries are disregarded in order to provide maximal exposure to complex examples of altered physiology. Managers have reported that graduate nurses who have been through this process demonstrate increased clinical competence, confidence, and problem-solving skills to then start the CCI.

During this time, and continuing for the next 8 weeks, the graduate nurses in the ICU begin to learn critical care nursing with the ECCO and PACEP modules. A sample schedule is shown in Table 8. Each week the new nurses attend at least 1 group session focused on application of the critical care information reviewed in the corresponding module. This process is also integrated with appropriate patient assignments when the orientees are in the unit with the preceptors. Detailed schedules are developed by the CCI director and the staff educators so that each graduate nurse’s time is divided between unit-based activities, completion of assigned online modules, clinical group sessions, and corresponding time in the unit with the preceptor.

During the clinical group sessions, critical care concepts (eg. in the respiratory module, managing a patient with an artificial airway) are illustrated by a variety of methods, including case study discussions with expert nurses, simulated demonstrations, and teaching rounds in any critical care unit. Table 9 lists the content covered in the group sessions. When a new nurse graduate is scheduled to work in a unit, immediate application of knowledge and skills learned in the critical care group sessions is ensured by the nurse’s preceptor, who chooses patient assignments that correlate with the concepts reviewed. Each week is built to incorporate concepts from the previous weeks so that the orientee gradually assimilates to the ICU environment through experiences with the preceptor, colleagues, and patients. As the graduate nurse demonstrates mastery of concepts

### Table 8 Critical care orientation schedule for new graduate nurses

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>General employee orientation</td>
<td>Professional Clinical Orientation</td>
<td>Professional Clinical Orientation</td>
<td>Professional Clinical Orientation</td>
<td>CPR In unit&lt;sup&gt;a&lt;/sup&gt; ECCO</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>ECCO In unit</td>
<td>HOE</td>
<td>ECCO In unit</td>
<td>HOE</td>
<td>ECCO In unit</td>
</tr>
<tr>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>ECCO In unit</td>
<td>HOE</td>
<td>HOE</td>
<td>HOE</td>
<td>ECCO CCI</td>
</tr>
</tbody>
</table>

**Weeks 4-8**
Variable: Days divided between ECCO, PACEP, CCI, and In unit

**Weeks 9-12**
Variable: Days in unit

Abbreviations: CCI, Critical Care Institute classes; ECCO, Essentials of Critical Care Orientation; HOE, Habits of Excellence orientation for all new graduate nurses; PACEP, Pulmonary Artery Catheter Education Program computer lessons.

<sup>a</sup> In unit indicates time with preceptor.

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and practices, additional responsibilities are given, promoting independence and autonomy with which to provide care for increasingly complex patients.

This program has been so successful that Northwestern Memorial Academy has agreed to provide additional resources to expand the program to include any experienced nurses with non–critical care experience who might benefit from participation in the CCI, as identified by the staff educators and managers.

**Unit Orientation**

At the end of week 8, each graduate nurse has completed all didactics but continues to work in the unit with a preceptor. This experience eases the graduate nurse into the critical care nursing role while still under the watchful guidance of a preceptor. Upon the successful completion of week 12, the graduate nurse is considered an advanced beginner in critical care nursing and may be allowed to independently provide care for patients in the ICU.

Throughout the orientation process, the progress of each orientee is evaluated by the CCI program director and the unit educators to ensure successful completion of each part of the orientation. These formative evaluations consist of tests, informal question-and-answer sessions, observations, clarifications, demonstrations, and weekly checklists completed by preceptors and orientees. Graduate nurses must also complete each ECCO and PACEP lesson with a score of 85% or better. If remediation is needed, the CCI program director works with all appropriate parties to determine a plan of action for the orientee to complete the program successfully and within a specified time.

Although graduate nurses, experienced nurses who are new to critical care, and experienced critical care nurses are evaluated differently, nurses within these identified groups are evaluated consistently across all 5 ICUs. We have specific evaluation criteria for each group, and those criteria are used consistently across all ICUs. This process allows more objective evaluation of orientees’ ability to function in the work environment. The staff of the CCI now have primary responsibility for ensuring competence, and this practice removes the managers’ and preceptors’ subjectivity on whether or not a nurse is ready for an independent assignment.

### Critical Care Preceptors

We recognized that one of the strengths of this new orientation program depended on the amount of support that could be provided to the ICU preceptors. Before the start of the new orientation, each preceptor was given the opportunity to review all the computerized learning modules. Many materials were also developed to assist both preceptors and orientees, including a preceptor guide, a case study book, a module guide, a pocket guide, and a CD of evidence-based critical care literature:

- **Preceptor guide**—provides a general overview of the orientation program and contains weekly checklists to keep abreast of each orientee’s progress and the focused learning experiences for that week.
- **Case study guide**—a collection of case studies, with increasing levels of complexity, developed for use by the preceptors. Each case situation
contains relevant patient data and a series of questions with answers so that the preceptor can easily guide an orientee to the correct answers. It also contains a blank copy of the situation without answers so that the orientee can complete it independently and review it later with the preceptor or staff educator. Tables 5 and 6 provide examples of both versions.

- Module guide—content outlines and references for each Web-based module. Refer to the ECCO site for more information about the content of the modules.

- Pocket guide—a collection of critical care reference material such as normal and abnormal pulmonary artery and intracranial pressure waveforms, normal ranges of results of laboratory tests, dysrhythmias, and acid-base disturbances. It is sized to accommodate data fitting on 3 × 5-in index cards, easily fits into a pocket, and allows orientees to add extra pages of information. Table 10 provides an example of a page from the pocket guide.

- CD—a collection of more than 350 articles on evidence-based practice in critical care, graphics, and PowerPoint presentations about a variety of critical care topics. It was started by the CNS, and materials were added by the staff educators. Under the fair use copyright guidelines, these CDs can be used only for educational purposes with our nurses, and they contain a disclaimer indicating so. In addition, each ICU has a folder on the CD that can also include the unit’s orientation manual or other unit-specific information.

  The staff educators and the managers are responsible for coordinating the orientation schedule between each preceptor and graduate nurse. Each preceptor is given a copy of the schedule that details when the preceptor’s graduate nurse is in group sessions, at the computer, or in the unit. Graduate nurses are also given detailed checklists containing the objectives for each group session that they need to complete in the unit with their preceptors. It is the responsibility of each graduate nurse to meet weekly with his or her preceptor to review checklist completion; the checklist is then reviewed by the CCI program manager during the nurse’s group sessions. This system allows communication of progress between the CCI instructors, the graduate nurses, and the preceptors—and communication back to the managers. This arrangement is especially helpful when a graduate nurse is assigned to more than a single preceptor.

Table 11 is an example of a graduate nurse’s checklist. Preceptors and educators involved in the Habits of Excellence program were allowed to adjust their schedules, enabling them to assume the additional responsibilities required for successful implementation of the orientation.

**Management Perspectives**

Although the goal of an effective orientation program is to produce a competent critical care nurse, the ICU nurse managers must also address fiscal and human resource issues: How quickly can graduate nurses be moved from orientation to the regular work force? How many orientees can a unit accommodate at one time? How can this intensive new program be initiated without addressing the learning needs of current staff members who were oriented under a different model?

One ICU nurse manager noted that graduate nurses in the ICU have a “steep learning curve” and usually do not demonstrate critical thinking and astute assessment skills until after they have been out of orientation for 6 months to 1 year.
By their 1-year anniversary in the unit, the graduate nurses have usually developed clinical competence but are not confident in their practice. The manager has called the second year of new graduate nurses’ ICU career their “confidence curve,” the time during which they develop confidence in themselves. At the same time, their peers and the medical staff develop confidence in the nurses’ assessments, clinical skills, and decisions related to patient care. The managers in each ICU supported the implementation of the newly designed program by absorbing the financial costs involved, facilitating space for computerized teaching time for the educators outside the unit. Table 12 shows the costs of the new model of critical care orientation. Although these costs are significant, they must be weighed against the benefits of the program.

Nurse managers noted that a primary concern in formulating an orientation program based on competency was identifying a cadre of preceptors who are motivated to teach, as indicated in the preceptors’ annual performance goals. Each preceptor must have excellent communication skills and at least 2 years of acute care experience (without performance issues), with one of those years in critical care clinical experience in the preceptor’s current unit. Preceptor workshops were designed to solidify these skills to enable the preceptors to evaluate and validate orientees’ accomplishments. To

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Table 11  Example of a page from the weekly checklist for the arrhythmias module

<table>
<thead>
<tr>
<th>Goals:</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• To identify basic cardiac rhythms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To recognize emergency arrhythmias and respond appropriately</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To set up the Marquette system for telemetry monitoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To identify the components of a LifePak defibrillator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To identify basic cardiac electronic paced rhythms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Demonstrates knowledge of basic arrhythmia recognition.**

1. Identifies the following rhythms on an ECG monitor:
   - Normal sinus rhythm
   - Sinus bradycardia
   - Sinus tachycardia
   - Atrial tachycardia
   - Atrial flutter
   - Atrial fibrillation
   - 1st degree A-V block
   - 2nd degree A-V block
   - 3rd degree A-V block
   - Junctional rhythm
   - Ventricular tachycardia
   - Ventricular fibrillation
   - Asystole

2. Determines heart rate and measures PR, QRS, and QT intervals on ECG rhythm strip

Abbreviations: A-V, atrioventricular; ECG, electrocardiographic; NAP, nursing administration policy; NCP, nursing care policy; PCP, patient care procedure.

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entice more senior expert nurses to become preceptors, one nurse manager created a new day-shift position. Initiating the new critical care orientation program with a group of preceptors specifically chosen because of their superior skills clearly illustrated to staff that the orientation process had changed.

Identification of appropriate graduate nurse candidates who can adapt to the ICU and hospital culture is essential. To be successful in this rigorous program, graduate nurse candidates must be self-motivated and have initiative. Nurse managers must maintain a close working relationship with both the graduate nurses and the preceptors to detect potential problems early in the orientation. Implementation of this program enabled some of the nurse managers to address hospital and unit culture along with socialization issues earlier than previously possible with the original orientation program. For example, one manager noted that in his unit, many nurses did not think that graduate nurses had a place in the ICU, and the result was a self-fulfilling prophesy. As the new critical care orientation program unfolded, the managers reinforced the expectation that the graduate nurses will be supported to succeed. Only then did the culture begin to change.

Initial Results

Our initial survey results targeted the CCI program for graduate nurses. Questionnaires that used a 5-point Likert scale were developed for preceptors, staff educators, and nurse managers. Table 13 is an initial evaluation of the CCI program to be completed by the preceptor; Table 14 is an initial evaluation to be completed by the manager.

Managers were asked about the structure of the program, the effectiveness of the resources, and behavioral and interpersonal skills. They reported that, compared with nurses who completed the previous orientation program, the new graduate nurses did the following:

- Had an increased level of confidence at the bedside
- Had an increased level of efficiency and time management skills
- Reported less anxiety, because the clinical concepts were introduced in a more structured and sequential manner
- Had a better understanding of the care associated with complicated critically ill patients

### Table 12 Comparison of costs of critical care orientation programs, based on 10 participants per session

<table>
<thead>
<tr>
<th>Previous program</th>
<th>New program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class time: 24 hours of lecture</td>
<td>ECCO: $1200 fee annually with a $175 per person user fee</td>
</tr>
<tr>
<td>Participant salaries: $56,000 (based on $20 per hour x 10 participants)</td>
<td>ECCO ECG course: $4000 fee annually with unlimited licenses</td>
</tr>
<tr>
<td>Instructor salaries: $840 (based on $35 per hour for 24 hours)</td>
<td>Human simulator: $100 per hour fee for the use of the simulator with 3 hours of use every time we run the course</td>
</tr>
<tr>
<td>ECG book: $200 (based on $20 each)</td>
<td>Full-time education consultant: $11,200 (7 weeks, 5 days per week training or preparing for the course activities for one series)</td>
</tr>
<tr>
<td>Education consultant: $200 (for 5 hours of supervision of classes)</td>
<td>Materials: $400 ($40 per person for printed material, books, CDs, and pocket reference)</td>
</tr>
<tr>
<td>Total costs: $57,240</td>
<td>Participants’ salaries: $56,000 (average of 10 people at $20 per hour, for a 7-week course, 40 hours per week)</td>
</tr>
</tbody>
</table>

Total costs for one session of CCI/HOE:

- $1750 ECCO
- 400 Simulator (two 2-hour sessions at $100 per hour)
- 400 Materials
- 56,000 Participants’ salary (10 at $20 per hour)
- 11,200 Education consultant (full-time facilitator’s salary for 280 hours)
- 5200 Annual fees for access to the online training

Total costs: $57,240

Additional costs for HOE:

- $7000 Instructors’ salaries
- 100 Materials

Total costs: $81,050

Abbreviations: CCI, Critical Care Institute classes; ECCO, Essentials of Critical Care Orientation; ECG, electrocardiography; HOE, Habits of Excellence orientation for all new graduate nurses.

a This comparison does not include professional clinical orientation and preceptors’ salaries, which are the same in both groups.

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- Developed more critical-thinking skills as case scenarios were reviewed
- Developed better networking skills with other ICUs and the ability to use resources in those other units, because the clinical experiences were not limited to their home unit and they had access to the resources of the entire facility

After the first 15 months, 116 nurses had completed the new critical care orientation program: 68 graduate nurses, 33 experienced non-critical care nurses, and 15 experienced critical care nurses. The staff educators and preceptors reported that the new critical care orientation program was less labor intensive than the previous program because they did not have to spend time preparing and teaching critical care classes; instead the majority of the classes were replaced by computer-based content and self-paced learning.

Because clear and concise written materials were provided, orientees, preceptors, and staff educators had fewer questions about daily schedules and expectations. Graduate nurses appreciated that educational materials were provided in both written and computer-based formats. Preceptors reported that they were able to spend more time concentrating on issues of patient care rather than on explaining critical
care concepts such as hemodynamics or interpretation of electrocardiograms. And finally, additional recruitment opportunities arose from word-of-mouth knowledge of this new orientation model.

For a while, we continued to offer the “old” orientation program, until we had fully implemented the new orientation model. This overlap allowed us a unique opportunity to compare groups. The managers’ impressions were that CCI groups did the following:

- Seemed to be more “hands-on” early on, and had more inclination to participate actively in patients’ care
- Appeared to integrate theoretical knowledge into clinical practice more readily
- Seemed more flexible, perhaps because many of the experiences were obtained outside the group members’ own clinical specialty areas
- Appeared to develop a sense of camaraderie, establishing themselves as a cohort and thereby facilitating socialization into the larger institution

In addition, we observed that with the aid of the CCI, graduate nurses had excellent clinical and assessment skills immediately after orientation. Compared with our previous orientees, nurses in the CCI group demonstrated critical-thinking skills, greater confidence in their decisions, and improved problem-solving abilities more quickly. Nurse managers now are fully committed to the CCI as the orientation program for graduate nurses.

| Table 14 Sample of form used by managers for evaluation of the Critical Care Institute |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| In general, I believe that the Critical Care  |
| Institute program was useful in:                | Not at all 1    | Somewhat 2      | Mostly 3        | To a great extent 4 | Not applicable 5 |
| 1. Decreasing the amount of anxiety felt by the |
| preceptors Comments:                            |                 |                 |                 |                 |                 |
| 2. Decreasing the amount of burnout felt by the |
| preceptors Comments:                            |                 |                 |                 |                 |                 |
| 3. Decreasing the amount of time spent in       |
| orientation Comments:                           |                 |                 |                 |                 |                 |
| 3. a. If the Critical Care Institute **decreased** |                 |                 |                 |                 |                 |
| the amount of time spent in orientation, by how |
| much time was orientation shortened?             |                 |                 |                 |                 |                 |
| 3. b. If the Critical Care Institute **increased** |                 |                 |                 |                 |                 |
| the amount of time spent in orientation, by how |
| much time was orientation lengthened?           |                 |                 |                 |                 |                 |
| Of the remaining questions, please indicate how  |
| true you believe the following statements to be. |
| Use the scale to the right to indicate your     |
| choice.                                         | Very false 1    | False 2         | Neither true nor false 3 | True 4 | Very true 5 |
| 4. The amount of information covered in the     |
| Critical Care Institute was appropriate         |                 |                 |                 |                 |                 |
| Comments:                                       |                 |                 |                 |                 |                 |
| 5. The balance of time devoted to the didactic  |
| portion of the program (the computer and class |
| time) and time in the unit was appropriate      |                 |                 |                 |                 |                 |
| Comments:                                       |                 |                 |                 |                 |                 |
| 6. The amount of time devoted to online         |
| computer learning (ECCO) was appropriate        |                 |                 |                 |                 |                 |
| Comments:                                       |                 |                 |                 |                 |                 |
| 7. The amount of resources my unit devoted to   |
| the Critical Care Institute was appropriate     |                 |                 |                 |                 |                 |
| Comments:                                       |                 |                 |                 |                 |                 |
| 8. Overall, I am satisfied with the Critical    |
| Care Institute Comments:                        |                 |                 |                 |                 |                 |
| 9. I believe that the Critical Care Institute  |
| should be continued Comments:                   |                 |                 |                 |                 |                 |

Abbreviation: ECCO, Essentials of Critical Care Orientation.
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Lessons Learned With Implementation

Although this new process was very well received, some lessons were still learned during the early period after implementation. These can be summarized as follows:

• Initially, preceptors were confused with the new process for the graduate nurses. As a result, the Northwestern Memorial Academy’s education consultant spent time with each preceptor, reviewing the new model of orientation and all the teaching tools available.

• Preceptors needed to revise their schedules to match the orientee’s schedules. Scheduling constraints for preceptors sometimes resulted in an orientee having multiple preceptors.

• Learning content provided by the central CCI program sometimes overlapped with that of the unit-specific orientation programs.

• The workload for the staff educators was increased to accommodate the Habits of Excellence program and those orientees who were not able to participate in the entire program.

• Preceptors did not hold experienced non-ICU nurses to the same schedule as that followed by the graduate nurses, so the orientation experience of experienced non-ICU nurses was more fragmented, similar to the limitations of our previous critical care orientation program.

We found that the graduate nurses were quite eager to participate in the new program and verbalized their motivation to develop and improve their clinical skills. Although they expressed frustration in managing the overwhelming amount of didactic information and resources, they realized the value of the content. The case studies that were reviewed with the graduate nurses during the group time or time with their preceptors helped alleviate some of the nurses’ anxieties when clinical experiences were lacking.

The experienced ICU nurses found the new orientation program a helpful refresher for their current knowledge base. However, the non-ICU experienced nurses felt the disconnection between the self-paced computer learning and the clinical experience because these nurses were not initially included in the group sessions. To provide a more coordinated orientation effort, educators and managers now encourage the preceptors to follow the same schedule of orientation for the non-ICU experienced nurses as that used for new graduate nurses.

A concern surfaced when clinical experiences were not always available. For example, at times the unit contained only a single patient with a disease process or procedure that coincided with the topic of that week. With multiple new critical care nurses competing for this same clinical experience, the limitations included having respect for the patient’s needs and privacy while balancing the optimal clinical learning experience for the new nurses. The review of policies and procedures was not received as well as other strategies were until we reformatted it to coincide with the hands-on experiences.

Preceptors initially reported their persistent need to give additional information to graduate nurses. We found it beneficial to reinforce with the preceptors that the graduate nurses are coming to the units prepared with more critical care information, and the preceptors should now serve as role models for graduate nurses to demonstrate what it means to “be a nurse.” The preceptors realize now that they still need to provide information, but the focus has shifted from reviewing critical care concepts to demonstrating the process of patient care.

Detailed communication of the CCI program was the most challenging aspect of this program because of the scope of the program and the number of people involved. When as few as 2 or as many as 6 new graduates began every 4 weeks, the educators found juggling schedules between orientees and preceptors a challenge, especially because of the constraints already in place with the structured schedule. This cascading effect exhausted the available resources.

We have just begun to expand the CCI program to incorporate experienced nurses with non-ICU backgrounds into sessions with the graduate nurses. We anticipate that this change will have an impact on resource allocation, making it vital to be cognizant of the constraints on ICU resources as we accommodate the larger number of participants. At the very least, we expect that a schedule similar to that of the graduate nurses will further enhance the experience for new orientees.

Conclusion

Our new model of critical care orientation allowed us to address some of the challenges facing critical care educators in integrating nurses with a variety of experience levels into the critical care setting. The new program has resulted in a more coordinated, consistent...
orientation experience for all orientees and for preceptors as well. We foster the knowledge and skill necessary for new nurses to function independently and competently in the ICU, and for the preceptors to have the necessary resources and materials needed to ensure consistent implementation of the orientation program.

The foundation of the CCI is also proving important in areas of the hospital other than the education of graduate nurses; it is serving as a template for major changes to the way orientation is provided in other nursing units. Using this new educational process as a foundation, we have successfully expanded two of our ICUs from 12-bed to 23-bed units. The structure of the new orientation program can be applied to any learning curve and can incorporate nurses at any skill level. The options have become limitless as we continue to develop and perfect the CCI. Now, with the initial implementation phase complete, we plan to expand the program and perfect it as variables in the profession and the workplace continue to evolve.

Acknowledgments
We thank all the people involved in making this program successful: hospital and nursing administration for their support of the proposal and the means to implement it, members of the Northwestern Memorial Academy for their expertise in curriculum development and leadership during implementation of the program, and the staff of the Patient Safety Simulator Center for their assistance in creation and implementation of the simulation scenarios.

Finally, we appreciate the support of all the critical care preceptors and staff of the ICUs at Northwestern Memorial Hospital, especially during the initial phases of implementation. It has truly been a team effort in which we can all take pride.

Financial Disclosures
None reported.

References
1. In intensive care units (ICUs) since the 1990s, what factors have changed requiring critical care educators to reevaluate orientation programs?
   - a. Longer length of stay and increased severity of illness
   - b. Shorter length of stay and increased severity of illness
   - c. Decreased severity of illness and shorter length of stay
   - d. Decreased severity of illness and stable length of stay

2. What were the major concerns of managers and educators regarding the training and development of the program?
   - a. Critical thinking skills and individualized course content
   - b. Practice skills and content consistency
   - c. Critical thinking and practice skills
   - d. Content and consistency of course and critical thinking skills

3. What inconsistencies were found in the initial assessment of the existing orientation program?
   - a. PowerPoint slides, instructor’s level of education, and scheduling
   - b. Instructional reliability, teaching materials, and instructor’s critical thinking skills
   - c. Teaching materials, educational techniques, and program length
   - d. Scheduling, instructional reliability, and teaching materials

4. What was the main purpose of the new orientation program?
   - a. To increase the educator’s job satisfaction
   - b. To improve ICU staffing
   - c. To promote independent and competent ICU staff
   - d. To provide new staff skills to function

5. The new orientation program was based on what nursing model?
   - a. Benner’s novice to expert model
   - b. Roy’s adaptation model
   - c. Benner’s expert to novice model
   - d. The Synergy Model

6. The human simulator used in the orientation model is valuable in assessing what?
   - a. Benner’s level of mastery
   - b. Critical thinking skills
   - c. Preceptor effectiveness
   - d. Nursing school attended

7. How many separate orientation pathways are present in the new critical care orientation algorithm?
   - a. 6
   - b. 4
   - c. 3
   - d. 2

8. What are the primary learning methods in the new orientation model?
   - a. Online learning, preceptored clinical time, and outside conferences
   - b. Case studies, online learning, and preceptored clinical time
   - c. Preceptored clinical time, tests, and online learning
   - d. Outside conferences, online preceptors, and case studies

9. What are some of the reported benefits for graduate nurses after the implementation of the orientation program?
   - a. Increased level of confidence and critical thinking skills
   - b. Increased use of evidence-based practice and confidence
   - c. Increased level of confidence and knowledge of administrative expectations
   - d. Increased use of evidence-based practice and level of confidence

10. What is the length of orientation for a new graduate nurse?
    - a. 8 weeks
    - b. 1 year
    - c. 4 weeks
    - d. 12 weeks

11. Within the clinical orientation of graduate nurses, how were they exposed to examples of altered physiology?
    - a. Emergency department rotations
    - b. Simulator use
    - c. Mentor-mediated experiences
    - d. Disregarding traditional unit boundaries

12. What tool was used to assess experienced critical care nurses’ knowledge level?
    - a. ECCO modules
    - b. Basic Knowledge Assessment tool
    - c. SAT
    - d. CCRN certificate

---

**Program evaluation**

- 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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The American Association of Critical-Care Nurses is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center’s Commission on Accreditation. AACN has been approved as a provider of continuing education in nursing by the State Boards of Nursing of Alabama (#ABP90062), California (#01036), and Louisiana (#ABN12). AACN programming meets the standards for most other states requiring mandatory continuing education credit for relicensure.
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Linda L. Morris, Pamela B. Pfeifer, Rene Catalano, Robert Fortney, Edith L. Hilton, Julia McLaughlin, Greta Nelson, Janet Palamone, Robb Rabito, Rebecca Wetzel and Lindsay Goldstein

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