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Rapid Deployment of Critical Care Nurse Education During the COVID-19 Pandemic



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This study evaluated nurses' perceptions of a rapidly deployed critical care education program conducted to prepare a community hospital for its transformation to a COVID-19 treatment center. The education included a traditional didactic approach and incorporated experienced nursing support staff at the bedside. Nurses were interviewed about the strengths and weaknesses of the program, and for their perceptions of the additional clinical support. A distributed learning model with small groups attending multiple trainings could have improved the didactic session. However, there was positive feedback about the use of a "buddy" system and critical care education specialist in the intensive care unit setting.

The COVID-19 pandemic has created many challenges for health systems across the world. One of the less discussed topics relates to the rapid need for training noncritical care nursing staff to take care of critically ill COVID-19 patients. As a health system in New York State, there was minimal time to prepare nurses using the typical classes, methods, or timeframes. An educational training program was created and deployed just as the health system was recording its earliest admitted COVID-19-positive patients. The training program was composed of 2 components: a single 4-hour didactic session, followed by enhanced clinical support for inexperienced intensive care unit (ICU) nurses in the form of an experienced buddy, and an available critical care education specialist (CCES). This article provides the results of a qualitative inquiry that sought to understand the perceptions of 8 nurses related to the value of the education and bedside support nurses.

Our health system took the step to open a COVID-19-specific treatment facility. An existing hospital staff working at a small community hospital provided the initial pool of nursing resources to care for these patients. The resources were composed of primarily medical/surgical nurses, emergency department nurses, perioperative nurses, and a smaller number of critical care nurses (who would be taking care of higher acuity patients than typical).

THE MODEL OF TRAINING USED

The educational program was created by clinical nurse educators, a pharmacist, and a respiratory

therapist. Discussion took place with advanced practice providers who were already taking care of COVID-19-positive patients related to incorporation of educational content. The class was a total of 4 hours and focused on the following COVID-19 care topics: respiratory/ventilators, proning, relevant pharmacology, and critical care monitoring including train-of-four monitoring for neuromuscular blockade assessment. Content was primarily delivered via a massed learning lecture format to 60 registered nurses, with small-group hands-on sessions for proning, arterial line management, and Flolan (epoprostenol sodium) tube priming.

There are many valid methods for delivering educational content,¹ including single-session learning over several hours.² Because there were already COVID patients being managed at the hospital, this was adopted as the most expeditious approach. Furthermore, the typically employed educational framework of distributed practice, which asserts repetition of content over time leads to learning, could not

KEY POINTS

- **Employ a distributed practice approach, with small groups, when delivering educational content.**
- **Utilize a "buddy" system and critical care education specialist to support the noncritical care nurse working in a critical care environment.**

Table 1. Subjects' Area of Practice and Years of Experience

| Unit before COVID-19 | Unit Experience | | | | |
|----------------------------|-----------------|-----|----------------|----------------|----------|
| | ED | ICU | GI | Peri-Op | Med/Surg |
| Nurses (n) | 3 | 1 | 2 | 1 | 1 |
| Nursing experience (years) | | | | | |
| <3 years | 0 | 0 | 0 | 0 | 0 |
| 3 to 9 years | 2 | 0 | 0 | 0 | 0 |
| 10 to 19 years | 1 | 0 | 0 | 9 | 1 |
| >20 years | 0 | 1 | 2 ^a | 1 ^b | 0 |

ED, emergency department; GI, gastroenterology.

^aDenotes 1 RN with previous ICU experience.

^bDenotes 1 RN with previous ICU experience.

be incorporated due to the immediacy of training needs.

Understanding that the single didactic session was not optimal, a CCES position was created and embedded in the hospital 24/7. This was an experienced critical care nurse whose sole function was to provide educational and care support for the nurses. Furthermore, less experienced nurses were to be paired with more experienced critical care nurses (the “buddy” system). The intent behind employing the CCES and nurse buddy roles were to augment just-in-time learning needs and provide additional patient care support.

RESEARCH METHOD

The researchers employed a qualitative approach for this project. An interview template was developed by the researchers, and the protocol was approved by the health system’s institutional review board prior to data collection. Researchers used class enrollment attendance sheets to identify which nurses attended the training. Two of the researchers, who did not work in the treatment center at the time, solicited participation from 20 to 25 nurses. A total of 10 consented to participate and were interviewed by the 2 nonfacility employed researchers.

After the interviews were completed, the recordings were transcribed, and all identifying information was removed. The interviewers then conducted a thematic analysis with the transcripts. Strengths and weaknesses identified within the themes were reported.

FINDINGS FROM OUR RESEARCH

Eight nurses who participated in the 4-hour training session were interviewed using a semi-structured interview approach. Demographic information for the participants can be found in Table 1. Data from interview transcripts were analyzed for themes.

Themes emerged related to the strengths and weaknesses of the training program, preparedness for transition to ICU nursing care, and experience working with both a buddy and CCES.

The strengths of the training program related to the educators who provided the didactic instruction. They were described as “very knowledgeable,” “good at explaining things,” and “able to answer any question.” The educators were comprised of clinical educators, who were experienced ICU nurses, a pharmacist, and a respiratory therapist.

However, participants had mixed experiences with some of the education related to the non-nurse educators ranging from being “very helpful” to “over your head.” One of the ICU nurses commented “I thought the pharmacy part was very good. But, taking someone with no critical care experience, I don’t know how much they would have retained.” An experienced emergency department nurse commented that the pharmacy training ought to be “dumbed down a bit because we didn’t even know what the drugs were.” There were similar positives and negatives about the respiratory therapists’ instruction including “I knew some basic things, like there’s 2 types of ventilation, but it was a lot to take in.”

The strongest theme related to opportunities centered around the group size for the lecture education. Participants felt smaller groups would have been beneficial for this component. Additionally, comments were made related to the desire for more hands-on sessions and less lecture time, allowing for “more questioning and more intimate group size.” Some participants also stated they felt the educational session as a whole was “rushed.”

Furthermore, participants indicated an educational model that included shorter, more frequent training sessions would have been beneficial. One participant stated the training “should have been something other

than just 4 hours...and the single session was...too much information all at once.” Others commented to “separate people according to their experience” for the didactic session. An experienced ICU nurse believed “[They] could have done something different with the ICU nurses that were only there to get the Flolan, train-of-four, and proning that they weren’t familiar with; they could have gotten that done in 1 to 2 hours.” Another subject noted that the non-ICU nurses “didn’t know drips or paralyzing people,” which was already familiar to ICU nurses. Although these themes reflect opportunities to improve the didactic portion of the training program, there were additional themes that emerged once the nurses were transitioned into ICU roles.

After the didactic training session, the non-experienced ICU nurses were intended to be set up with an experienced ICU nurse as a buddy. This transition to clinical ICU care was also augmented by making CCESs available. Although analysis revealed the majority of subjects’ experience with both the buddy and CCES were beneficial, there were also drawbacks. The key limitations to the buddy system was a lack of their availability from the outset of clinical responsibility in the ICU. Three subjects felt there were “not enough ICU nurses available to be buddies at the beginning.” Another stated it would have improved her first days in the ICU if “they would have brought more experienced ICU nurses over [to the COVID-19 treatment facility] sooner.” Another non-ICU nurse voiced distress at the lack of a buddy: “my thought was that we would have the support to help us, and we would have someone we could go train with to understand how to take care of these patients.” Despite the perception that there may not have been enough ICU nurses to be buddied with initially, once there were enough experienced ICU nurses available, the feedback was positive.

Half of the participants found the CCES helpful as a critical care support role. One participant explained that the CCES provided additional support: “If you had a question when everyone else was busy, that person was just sliding around asking if they could help with anything.” The additional benefit of having a CCES related to just-in-time training and skill confirmation. A nurse stated “you could [say] ‘Ok, I drew off the art line yesterday, I’m going to do it again by myself. Do you want to watch me?’ They were there for that or if you had a question.”

Psychological stress was reported by participants, especially enhanced when they felt a lack of support by an ICU-experienced nurse. One nurse reported: “There is nothing that can prepare you for what the first few days were like. It’s indescribable. And really, there’s still some days that are indescribable, it’s just so stressful, and hard to describe how overwhelming it is.”

Another said, “I wasn’t prepared for how sick these patients were; I don’t think anybody was, even the nurses who came over [from higher-acuity ICUs]. The only thing I can describe was, when I walked into the ER my first day, I had 5 patients. It was like a battle zone. I think I have PTSD from it.”

Additional comments related to items such as the use of checklists and daily huddles were said to be very helpful by one of the experienced ICU nurses who worked as a charge nurse and clinical specialist during interview. She said: “They have a book in the ICU now that says the charge nurse should do this during the shift, and it’s like a checklist.” This checklist, as well as the use of daily huddle she found to be “very helpful.”

Although data analysis revealed positive aspects of the training, such as the presence of an experienced ICU buddy and a CCES, there were also themes revealing avenues to improve both the didactic and clinical portions of the program. Hospital systems needing to implement rapid educational training programs can learn from these experiences.

DISCUSSION

In order to prepare for a potentially devastating demand of critical care patients, nurses from all specializations within the health system received a rapid training course. The content of the education focused on what was known at the time about management of COVID-19 patients. There was not time to create and implement a didactic training program using the distributed practice model. The didactic session was conducted using a massed-practice model, and analysis revealed that distributed practice may be more effective.

The massed practice single didactic training session garnered the most negative feedback from subjects. It emerged as a clear theme that nurses felt rushed and lectured to with varying levels of effectiveness. Prior research supports the effectiveness of employing a distributed practice approach for enhancing knowledge retention.³ The distributed practice model gives learners shorter bursts of didactic training over a longer course of time and has been shown to be beneficial for both cognitive information processing and retention as well as psychomotor skill acquisition.⁴ Distributing multiple educational sessions and practice opportunities in smaller groups can promote active engagement, cognitive retention, and enhance psychological safety.⁵ Given that nurses repeatedly verbalized difficulty with new didactic concepts, employing a distributed practice approach would be recommended.

Given the participants’ comments related to situational stress, additional simulation-based training could have been employed. Simulation enhances psychological perception of realism in the training environment,

and offers health care practitioners a safe environment in which to practice new skills.⁵ Non-ICU nurses reported an extensive amount of new material and skills discussed in the training that were often required of them in the clinical environment such as managing arterial lines, drips, and proning. Even experienced ICU nurses reported new material to learn such as Flolan. Offering short didactic sessions followed by opportunities for simulated task practice in small groups can enhance confidence and improve skills.⁶ There are data to support simulation enhancing psychological safety when learning new skills especially under perceived high-stress.⁵ Because participants were expected to transition into critical care environments with patients with a very high level of acuity, simulation with debriefing may mitigate stress on nurses.

Participants also referenced challenges related to the buddy system. The intent was to provide support for the noncritical care nurses. However, given increased demand for critical care nurses across the system, the ability to staff experienced ICU nurses at the COVID-19 hospital was initially challenging, and some nurses did not feel they had adequate buddy support.

Researchers have echoed the concerns of these nurses that team-based nursing is a valuable model to adopt to deal with the COVID crisis.⁷ That mobilizing and training nurses from non-ICU units such as medical/surgical and peri-operative services and situating them with an experienced ICU team lead can effectively manage these critically ill patients.⁷

Subjects who became especially distressed and tearful during interviews (n = 2) were non-ICU nurses who explained that they were expected to perform as the ICU nurse without the help of a buddy. This was apparent to the experienced ICU nurses who were expected to supervise them in the clinical setting: “We had to spend time teaching those med/surg nurses, ok, this is how you draw from an A-line, this is how you zero it, because they were expected to take over this patient later in the day, which was unrealistic. Because they had no clue what was going on.” The literature supports using team-based models to enhance, not only nurse training and preparedness, but also confidence and self-efficacy.⁸

Additionally, team-based model strategies were found to be helpful both in interviews and prior research.⁷ Although the buddy system was employed, an immediate transition to a team-based model, incorporating 1 experienced ICU nurse should have been implemented from the start. A team-based model of nursing may have helped to mitigate knowledge deficits from noncritical care nurses and reduced situational stress levels.

LESSONS LEARNED

- Create and implement a team-based nursing model when needing to staff nurses who are working outside of their typical specialization.
- Attempt to stratify nurses into learning groups based on their most recent prior experience.
- The decision to use experienced support nurses (buddy and CCES) was well received.

IMPLICATIONS FOR OTHER ORGANIZATIONS

Health care systems have been required to restructure both hard and soft resources to deal with the surge of the COVID-19 crisis. Allocating non-ICU nurses from other units in the hospital to assist with ICU patient management requires training and additional clinical support (such as a buddy or CCES) while working in the ICU. Didactic training is important to learn new skills and can be enhanced using distributed practice. Small groups and repeated training sessions can help learners acquire new skills that can be used immediately in the ICU, but distributive practices can take time that may not have been available during pandemic planning.

Another adjuvant for training practice is simulation with both facilitated and self-guided debriefing; these can enhance didactic and technical skill acquisition. Team-based models were mentioned as very helpful by the subjects in this study, and that is reinforced by other authors who have been similarly adjusting staffing models to accommodate the COVID surge.⁷ In summary, hospitals can enhance disaster-preparedness training by using distributive learning tailored to the specialty, simulation, debriefing, and team-based practice.

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