AACN Advanced Critical Care
Published online March 4, 2024, pp. e1-e7

Nancy Blake, PhD, RN, CCRN, NEA-BC, FACHE, FAONL, FAAN
Department Editor

Leadership and Staff Working Collaboratively to Develop Appropriate Staffing Guidelines

Nancy Blake, PhD, RN, CCRN, NEA-BC, FACHE, FAONL, FAAN
Kelly Cardenas-Lopez, MSN, RN, ACNS-BC
Nofal Kahwaji, MSN, RN, CCRN
Vanken Panaflor, BSN, RN
Rebecca Sandoval, DNP, MBA, RN, NEA-BC
Laura Santana, DNP, MSN, MHA, RN
Annie Shih, BSN, RN, CCRN
Maria Jesusa (Susan) Ulit, DNP, RN, CNS, CCRN, CNRN, SCRN

Ensuring safe and proper nurse-to-patient ratios with critically ill patients has been a constant struggle at hospitals throughout the country. Nursing leaders are trying to improve staffing, but many leaders are not working with direct-care nurses to find a solution. Collaboration between nursing leadership and direct-care nurses on the front lines is essential to improving the work environment and developing sustainable processes for safe and proper staffing.

In 2018, the American Association of Critical-Care Nurses (AACN) came together with the American Nurses Association (ANA), the American Organization of Nurse Leaders (AONL), the Healthcare Financial Management Association (HFMA), and the Institute for Healthcare Improvement (IHI) to partner on nurse staffing issues. In 2022, the National Nurse Staffing Think Tank was formed with these same organizations to identify high priority areas to focus on to address the national nurse staffing shortage. Priority areas identified by the think tank were healthy work environments; diversity, equity, and inclusion; work schedule flexibility; the stress injury continuum (ie, decreasing burnout and supporting nurse well-being); and innovative care delivery models.[1] The

Nancy Blake is Chief Nursing Officer, Los Angeles General Medical Center, 24719 Garland Drive, Valencia, CA 91355 (ntblake@aol.com).

Kelly Cardenas-Lopez is Clinical Nurse Specialist ICU/PCU, Harbor-UCLA Medical Center, Torrance, California.

Nofal Kahwaji is Assistant Nursing Director Critical Care, Los Angeles General Medical Center, Los Angeles, California.

Vanken Panaflor is Registered Nurse, Harbor-UCLA Medical Center, Torrance, California.

Rebecca Sandoval is Clinical Nursing Director ICU, Los Angeles General Medical Center, Los Angeles, California.

Laura Santana is Clinical Nursing Director, Harbor-UCLA Medical Center, Torrance, California.

Annie Shih is Registered Nurse, Harbor-UCLA Medical Center, Torrance, California.

Maria Jesusa (Susan) Ulit is Clinical Nurse Specialist ICU/PCU, Harbor-UCLA Medical Center, Torrance, California.

The authors declare no conflicts of interest.

DOI: https://doi.org/10.4037/aacnacc2024465

recommendations from this group were published and are available online.[1]

Later in 2022, the group—now known as the Nurse Staffing Task Force—met again to develop long-term solutions to address the national nursing shortage. The group defined appropriate staffing as "a dynamic process that aligns the number of nurses, their workload, expertise, and resources with patient needs in order to achieve quality patient outcomes within a healthy work environment"[2(p3)] and suggested 5 imperatives of appropriate staffing, with recommendations.[2] The 5 imperatives of appropriate staffing outlined by the group include "reform the work environment, innovate the models of care delivery, establish staffing standards that ensure quality care, improve regulatory efficiency, and value the unique contribution of nurses."[2(p2)] The purpose of both of these groups was to bring together direct-care, frontline nurses; health care executives; nurse leaders; nurse scientists; quality and safety experts; patient and family advocates; and other subject matter experts to address the nurse staffing crisis.

AACN has long recognized the significance of nurse staffing being based on the needs of patients and competencies of the nurse. They developed the AACN Healthy Work Environment Standards, of which one standard is appropriate staffing.[3] AACN states that for appropriate staffing to occur, "Staffing must ensure an effective match between patient needs and nurse competencies."[3]

Results of the AACN Critical Care Nurse Work Environment Survey conducted in October 2021 (in the midst of the COVID-19 pandemic) showed a significant decline since 2018 on the rating of staffing effectively matching patient needs and nurse competencies (mean of 2.66/4.0 in 2018 to 2.33/4.0 in 2021).[4] The same survey also showed that 49% of participants who stated their units were appropriately staffed 75% of the time reported they have no plans to leave their jobs in the next 3 years.[4]

In addition, AACN assembled a work group in 2023—comprising frontline nurses and nurse leaders, as well as AACN staff—to develop staffing standards for adult critical care. These standards are due to be published in May 2024.

This column describes an example of leaders and staff working together to address the second healthy work environment standard of appropriate staffing[3] by developing unit-specific guidelines based on patient needs and outcomes. The 1-to-1 (1:1) staffing criteria project provided an opportunity for frontline staff to effect meaningful change toward appropriate staffing with the added bonus of potential decreased nurse burnout, improved staff satisfaction/morale, and improved nurse retention.

Developing Critical Care Staffing Criteria

The journey for a new policy and appropriate staffing began at Harbor UCLA (University of California Los Angeles) Medical Center critical care units. This hospital is operated by the Los Angeles County Department of Health Services (DHS), which serves a diverse ethnic and socioeconomic patient population. This facility has 5 different critical care units, all serving a variety of care needs that include but are not limited to adult cardiothoracic, trauma/surgical, coronary care, medical, and neurosurgical services. Patients in these units are extremely critically ill and require multiple resource-intensive approaches of care throughout their hospital stay. Changes in patient acuity can occur rapidly in these patients, affecting the nurse-to-patient ratios at any time.

Although the hospitals for the Los Angeles DHS system in California required minimum staffing ratios that were 1 nurse to 2 patients and had requirements to staff by acuity as well, there were times when patients needed 1:1 staffing for extended periods of time. There were no guidelines on what constituted the need for 1:1 staffing, providing an opportunity to develop criteria for those patients in order to avoid nurses having to provide care for 2 very critically ill patients simultaneously. Examples of the care provided to these patients include, but are not limited to, administering multiple blood transfusions, actively titrating multiple medication and/or vasoactive infusions, drawing frequent blood samples, replacing electrolytes, and performing continuous renal replacement therapy and frequent assessments. Those tasks frequently required more than 1 nurse at a time to complete. One-to-one nurse-to-patient ratios were determined on the basis of subjective assessments by the charge nurse and the bedside nurse together.

The critical care nurses shared their concerns with the chief nursing officer (CNO) about appropriate staffing. The idea for this project began when one of the critical care nurses approached the CNO with a small list of criteria that the staff had developed. The organization

had recently implemented shared governance and shared decision-making between leadership and frontline staff, which is important for a healthy work environment. The CNO was very supportive of staff-driven decisions. The budgets that were developed in previous years were set with a nurse-patient ratio of 1 nurse to 2 patients. Over time, the acuity of the patients increased for a small subset of patients in this busy trauma center, but the staffing budget and process had not changed.

Staffing Policy Task Force Was Formed

The CNO asked the staff to develop objective criteria to identify the subset of intensive care unit (ICU) patients who required this time-intensive level of care. Until that time, nurses were struggling with providing safe patient care and did not feel supported by leadership. After that discussion, the CNO spoke to the director of critical care services and asked for a small work group of staff and leaders to work on these criteria. With the milieu ripe for change, a task force composed of frontline ICU nurses representing each 1 of the 5 adult ICUs, a nurse manager, 2 clinical nurse specialists (CNSs), and the director of critical care services was formed. With nursing leadership in full support of this project, this task force was empowered to meet routinely for several weeks to develop a draft of the 1:1 criteria that would ensure patient safety, safe nursing practice, and efficient use of resources. This CNS-led team of committed ICU nurses was driven to challenge the status quo and make an impactful change in patients' lives and their working environment. They carefully examined the criteria, engaged in meaningful discussions to understand the different perspectives of their fellow nurses in the various specialty-specific ICUs, and worked as a team to come to consensus in this process. One challenge the task force encountered was the lack of references or data in the literature on 1:1 or 24-hours-of-care staffing in the ICU. None of the other facilities in their health care system had a 1:1 staffing policy either, so once the first draft was developed, it was important to include nurses from the other DHS hospitals before the list was finalized for the system and ready for review by leadership. The task force also incorporated other facility-specific criteria. The process that was followed to formulate the work is outlined in the Table.

Incorporating the Criteria Into the New Staffing and Acuity System

Once the guidelines were developed and approved (see the Figure for the guidelines), the criteria were included in the new Cerner staffing system (Acuity Scheduling and Time Employee Resource [ASTER]), by the Los Angeles General Medical Center, a DHS hospital that was the first to go live on the new system. ASTER allows informed decisions about assignment of ICU patients by offering transparent analysis of staff workloads. The acuity system also considers admissions, discharge, and transfers when it generates the number of nurses needed. The system generally identifies the appropriate acuity for the patient, but in instances where it does not, the charge nurse can trigger the 1:1 criterion by putting a note in the system.

The guidelines standardized the 1:1 and 1:2 patient assignments across DHS hospitals and decreased subjective assessments. Furthermore, the transparency of equitable assignments increased staff morale by decreasing questions regarding high-acuity assignments. Satisfaction with staffing has improved throughout the system with implementation of the new guidelines.

Nurse staffing is influenced by various critical factors, such as patient acuity, admissions and transfer rates, discharges, and the physical layout of the nursing unit. In general, the 1:1 guidelines are a great objective document to determine those patients who cannot be in a paired patient assignment due to the level of care that is needed. One of the criteria indicating a 1:1 assignment is a patient who is on continuous renal replacement therapy (CRRT), typically because these patients have additional critical care issues and are not stable. However, stable patients on CRRT alone can be in a paired assignment with another patient. This is one of the criteria that is flexible depending on other issues that are happening with the patient.

Summary

The staff came forward and established the 1:1 criteria to provide a standardized guideline and workflow for staff to follow. Prior to implementing these criteria, staff satisfaction with appropriate staffing was low; after implementation, staff satisfaction has improved. The process of leadership and staff working together

Table: Process Used to Develop the Staffing Policy

Process Step	Actions
1. Identify the need	ICU staff, including nurses, educators, physicians, and administrators, recognized the need for a 1:1 staffing guideline.
2. Establish a committee	Establish a committee
3. Literature review	The committee conducted a thorough review of the literature including existing research and best practices related to 1:1 or 24-hours-of-care staffing in the ICU. A rough draft was developed by 1 of the ICUs to begin the dialogue.
4. Data collection	Data were collected on patient acuity, outcomes, and workload to allow the committee to better understand the current situation in the ICU.
5. Define criteria	The committee defined clear criteria for when 1:1 patient care is necessary. This might involve considering factors like severity of illness, patient instability, specific diagnoses, and medical devices (such as CRRT, TTM, MTP, ECMO, or number of vasoactive medications).
6. Draft guideline	Using the information gathered, the committee drafted a 1:1 patient acuity guideline. This guideline includes clear instructions for when, why, and how 1:1 care should be provided.
7. Feedback and revision	The drafted guideline was circulated among the ICU staff for feedback. Input from ICU nurses was gathered, and revisions were made accordingly. The draft policy was then shared with other DHS hospital ICU nurses, and additional revisions were made.
8. Approval	The draft feedback was brought to the system CNO council meeting for approval and then to the system leadership committee, which included the CNOs, CMOs, and CEOs for approval. This group also included the system CNO and CMO.
9. Training and education	Once the guideline was finalized and approved, staff members were trained on its implementation. This ensured that everyone understood and could follow the new protocol.
10. Implementation	The guideline was put into practice in an expected-practice protocol for the system. Staffing would begin on the basis of these guidelines.
11. Monitoring and evaluation	Continuous monitoring of the guideline's effectiveness is essential for assessing its impact on patient outcomes as well as staff satisfaction. Adjustments are made as needed on the basis of ongoing feedback.
12. Regular review	Guidelines in health care are typically subject to periodic review to ensure they remain up to date and aligned with the latest research and best practice.
13. Implement the guidelines into the new acuity system	Approximately 18 months after the guidelines were developed, they were built into the new acuity system that was first implemented at a single DHS facility.

Abbreviations: CEO, chief executive officer; CMO, chief medical officer; CNO, chief nursing officer; CRRT, continuous renal replacement therapy; DHS, Department of Health Services; ECMO, extracorporeal membrane oxygenation; ICU, intensive care unit; MTP, massive transfusion protocol; TTM, targeted temperature management.

to develop appropriate staffing supports a healthy work environment. This work reflected several of AACN's Healthy Work Environment Standards[3] including true collaboration, effective decision-making, appropriate staffing, and authentic leadership demonstrated by the leaders who supported this staff-driven work.

REFERENCES

1. American Nurses Association. Partners for Nurse Staffing Think Tank. 2023. Accessed February 9, 2024. https://www.nursingworld.org/practice-policy/nurse-staffing/nurse-staffing-task-force/nurse-staffing-think-tank
2. Nurses and American Nurses Association; Nurse Staffing Task Force. Nurse Staffing Task Force imperatives, recommendations, and actions. 2023. Accessed February 9, 2024. https://www.nursingworld.org/~49df86/contentassets/568122c62ddc44bea03b11a71f240a50/nurse-staffing-task-force-imperatives-recommendations-and-actions-1.pdf
3. American Association of Critical-Care Nurses. AACN standards for establishing and sustaining healthy work environments: a journey to excellence. *Am J Crit Care.* 2005;14(3):87.
4. Ulrich B, Cassidy L, Barden C, Varn-Davis N, Delgado SA. National nurse work environments-October 2021: a status report. *Crit Care Nurse.* 2022;42(5):58-70.

Routine patient acuity and 1:1 guidelines will be assessed every 6 hours by the primary nurse and charge nurse to establish and ensure the need for 1:1 nurse-to-patient ratio.

The patient's acuity that accurately reflects the patient's current condition will be entered in the acuity classification system *and* reassessed every 4 hours or when reevaluation is due as indicated in Sections 1 and 2 below. If the charge nurse feels that the 1:1 criteria are met, and the classification system does not reflect that, the charge nurse can trigger the 1:1 (24 hours of care) criteria by putting a shift note in ASTER.

All efforts will be made to provide timely 1:1 patient care as staffing permits.

Once a patient meets 1:1 guidelines, the charge nurse will notify the following:
(1) Nurse manager on weekdays
(2) Nursing supervisor/staffing office on weekends, off-shift, and holidays

A patient will be considered 1:1 if he/she fulfills 1 or more criteria under Section 1.

A patient will be considered 1:1 if he/she fulfills 2 or more criteria under Section 2.

Section 1
Patient must have at least **1** of the following:

1. Organ donation or DCD
- Identified by One Legacy for organ donation and DCD

NOTE: Keep the patient 1:1 throughout ICU stay from initiation to completion of organ/tissue donation.

2. Postoperative open heart surgery

*NOTE: Keep the patient 1:1 for the first **8 hours** postoperatively and re-evaluate every 6 hours thereafter.*

3. ECMO
- Patient is intubated on mechanical ventilation
- Unstable oxygen saturation <90% with FiO_2 100%, PEEP >20
- Hemodynamic compromise requiring vasoactive medications and fluid replacements including blood products
- Use of sedatives and paralyzing agents that requires multiple dose changes to reach goal
- Monitoring for bleeding due to full anticoagulation that prevents clot formation in ECMO circuit

*NOTE: Keep the patient 1:1 for the first **8 hours** of ECMO therapy and re-evaluate every 6 hours thereafter*
Requires 2:1 staffing if using ECMO-trained registered nurse performing the role of the perfusionist responsible for the operation and troubleshooting of the device

4. Uncontrolled/Refractory intracranial hypertension
- Elevated ICP >20 mm Hg unresponsive to conventional methods of intracranial hypertension management (analgesia, sedation, mannitol bolus doses, hypertonic saline boluses, CSF drainage)
- Initiation of tier 2 interventions of Seattle International SIBICC algorithm for severe TBI: neuromuscular blockade and other therapies to increase cerebral perfusion pressure (fluid boluses, vasopressors, inotropes) and maintain pCO_2 32-35 mm Hg
- Initiation of tier 3 interventions of SIBICC algorithm for severe TBI patients (pentobarbital coma, mild hypothermia/targeted temperature management, secondary decompressive craniectomy)
- Neurological checks every 15 minutes after boluses

5. CRRT
- On CVVH/CVVHD/CVVHDF modes

Most patients on CRRT have multiple systems that are failing, but if the patient is stable and does not meet other 1:1 criteria, they can be moved to 1:2.

6. TTM
- Initiation/maintenance of TTM protocol

NOTE: Keep the patient 1:1 for the entire duration of the TTM protocol including the rewarming phase.

Continued

Figure: ICU 1:1 staffing guidelines proposal. BiS, bispectral index; CRRT, continuous renal replacement therapy; CSF, cerebrospinal fluid; CVVH, continuous venovenous hemofiltration; CVVHD, continuous venovenous hemodialysis; CVVHDF, continuous venovenous hemodiafiltration; DCD, donation after cardiac death; ECMO, extracorporeal membrane oxygenation; EKOS, EkoSonic endovascular system (Boston Scientific); FiO_2, fraction of inspired oxygen; ICP, intracranial pressure; ICU, intensive care unit; IV, intravenous; pCO_2, partial pressure of carbon dioxide; PEEP, positive end-expiratory pressure; SISTBICC, Seattle International Severe Traumatic Brain Injury Consensus Conference; TBI, traumatic brain injury; TTM, targeted temperature management.

Section 1 (*continued)*
Patient must have at least **1** of the following:

7. Activation of massive transfusion protocol

8. Proning (not self-proning)
- Patient is intubated on mechanical ventilation for severe acute respiratory distress syndrome
- Unstable oxygen saturation <90% with FiO_2 100%, PEEP >20
- Hemodynamic compromise requiring vasoactive medications
- Use of paralyzing agents that requires multiple dose changes to reach goal

9. Tissue plasminogen activator administration for acute ischemic stroke

10. Emergent bedside exploratory surgery

NOTE: Keep the patient 1:1 throughout the duration of the surgery until return to baseline.

11. After stereotactic frame placement (Rancho phase II epilepsy monitoring unit study with implanted electrodes for the epilepsy program)—Rancho only

12. Critical burns – Los Angeles general burn unit only
- Total body surface area of greater than 40% (>30% in pediatric patients)
- Third degree burn of greater than 10% total body surface area
- Any burn associated with actual or suspected inhalation injury
- Any burn injury sustained during contact with a high voltage or amperage source
- Any burn involving major trauma in which the burn is judged to be the greater threat to life or limb
- Selected moderate burns in poor risk patients (age <5 or >60, having concurrent disease processes, diabetes, congestive heart failure)

Note: Requires 2:1 for the day shift due to the dressing changes on day shift, and 1:1 staffing for the night shift.

Section 2
Patient must have at least **2 criteria (criteria 1 *and* any of criteria 2-11)**

1. Hemodynamic instability requiring 2 or more vasoactive medications (excluding nontitratable vasopressin)
- Unstable defined as fluctuating or unpredictable heart rate, blood pressure, or oxygen saturation
- Vasoactive medications include but not limited to norepinephrine, epinephrine, dopamine, nicardipine, nitroprusside, dobutamine (please see policy for full list of medications)
- Active titration of vasoactive medications
- Anticipation for addition of vasoactive medications

NOTE: This criterion must be paired with another criteria (criteria 2-11).

2. Intra-aortic balloon pump, Impella (Abiomed), or heart assistive device
- Fluctuating or unpredictable heart rate, blood pressure, or oxygen saturation

3. Use of a neuromuscular blocking agent
- Administration of any paralyzing medication
- Train-of-four monitoring
- BiS monitoring to assess for adequacy of sedation

4. Pentobarbital coma for uncontrollable seizures if titrated by the registered nurse
- On continuous encephalogram and/or BiS monitoring for burst suppression

5. Pulmonary artery catheter insertion and management
- Assisting physician with insertion of pulmonary artery catheter
- Monitoring pulmonary artery wedge pressures, cardiac output, and central venous pressure every 6 hours

6. ICP monitoring and CSF drainage
- Monitoring and documenting CSF output from external ventricular drain
- Monitoring ICP measurements

Continued

Figure: *Continued*

Section 2 (*continued*) Patient must have at least **2 criteria (criteria 1 *and* any of criteria 2-11)**
7. Acute substance withdrawal requiring medication administration at least every 15 minutes with risk for airway compromise
8. Unstable cardiac arrhythmias requiring frequent interventions such as defibrillation, cardioversion, or transcutaneous pacing - Prolonged or frequent episodes of ventricular tachycardia, supraventricular tachycardia heart rate > 160s, atrial fibrillation with rapid ventricular response, unstable bradycardia (wide QRS complex requiring interventions more frequently than every hour)
9. Initial stage of diabetic ketoacidosis and hyperosmolar hyperglycemic nonketotic syndrome with frequent and multiple IV fluid changes
10. Desensitization protocol - Acute intravenous drug desensitization requiring scheduled titration of the IV antibiotic every 15 minutes and close monitoring of the patient for a type 1 allergic reaction (urticaria, angioedema, or anaphylaxis)
11. EKOS catheter management - Monitoring of patient undergoing ultrasound-facilitated thrombolysis using the EKOS catheter for treatment of pulmonary embolism

Figure: *Continued*