NK9EOa

Using the required empirical outcomes (EO) presentation format, provide one example of an improved outcome associated with nurse involvement with the design or redesign of the physical environment.

Example a: Improving Fall Rates with the Design of a Cardiothoracic ICU

Problem

The patient fall rate in the WakeMed Cardiothoracic Intensive Care Unit (CTICU) department was too high and needed to be improved.

Pre-Intervention

During her management rounds, Jennifer Elliott, DNP, APRN, ACNS-BC, NEC-BC, Director of Critical Care Services, received patient and nurse feedback about the design of the nursing unit and patient rooms in WakeMed's CTICU. The patient rooms with curtains did not promote a quiet environment during family visitation, and the aesthetics were outdated. There was an opportunity to increase visibility to help keep patients safe. Clinical nurses gave feedback that the small patient rooms made it challenging to use the equipment needed to care for critically ill patients. The current design of the patient rooms made it challenging for nurses to increase patient mobility and prevent patient falls. With organizational plans to relocate the CTICU, Elliott identified an opportunity to include clinical nurses in the design of the physical environment to address these concerns.

In 4th Quarter FY 2021 (July-September 2021), the CTICU patient fall rate was 2.98 per 1000 patient days. This is calculated by dividing the number of patients falls by the number of patient days and multiplying by 1000.

Goal Statement

Decrease the patient fall rate in the WakeMed CTICU.

Participants

Intensive Care Unit Realignment Team			
Name/Credentials	**Discipline**	**Title/Role**	**Department**
Jennifer Elliott, DNP, APRN, ACNS- BC, NE-BC	Nursing	Director of Nursing	Critical Care Services
Don Lemaire, BSN, RN	Nursing	Nurse Manager	Cardiothoracic ICU
Jessica Dunn, BSN, RN	Nursing	Clinical Supervisor/ Educator	Cardiothoracic ICU
Kelsey Sain, BSN, RN	Nursing	Clinical Supervisor/ Educator	Cardiothoracic ICU
Taliah Shabazz, RN	Nursing	Clinical Nurse I	Medical ICU

Michelle Kniceley, BSN, RN	Nursing	Clinical Nurse III	Cardiovascular ICU
Carrie Minton, RN	Nursing	Clinical Nurse I	Cardiovascular ICU
Emily Malonzo, BSN, RN	Nursing	Clinical Nurse III	Cardiothoracic ICU
Marissa Uriarte, RN	Nursing	Clinical Nurse I	Cardiovascular ICU
Kaitlyn Cron, BSN, RN	Nursing	Clinical Nurse II	Neuro ICU
Cole Corbett, BSN, RN	Nursing	Clinical Nurse II	Cardiothoracic ICU
Rajpreet Brar, BSN, RN	Nursing	Clinical Nurse II	Cardiothoracic ICU
Andy Heidinger, BSN, RN	Nursing	Clinical Nurse II	Cardiothoracic ICU
Eloise Lewis	Nursing	Clinical Secretary	Cardiothoracic ICU

Description of the Intervention

October-December 2021

- Elliott formed the ICU Realignment Team, which included the director, managers, clinical nurses, and clinical secretary.
- Mock rooms were constructed to assist in the planning and designing of the interior rooms for new construction in the 2E shell space. Two sessions were offered for ICU care team members to provide feedback. The ICU Realignment Team members gave input into the placement of computers, monitors, eICU cameras, glove holders, and sharps containers. Kelsey Sain, BSN, RN, Clinical Nurse CTICU, suggested that the computer station be placed near the end of the bed to enable nurses to easily see patients while completing documentation. Carrie Minton, RN, Clinical Nurse CTICU, suggested the call button for the eICU cameras be mounted on the wall at the head of the bed for easy access while remaining with the patient. Emily Malonzo, BSN, RN, Clinical Nurse CTICU, recommended that a call bell be accessible near the family area to facilitate calls for assistance.
- The series of design development meeting began, attended by members from administration, construction and design, nursing leaders, and physicians. The team met every two weeks to discuss design recommendations. Rob Anastes, the architect, provided a heat map showing the unit's visibility across the nurse's station. The ICU Realignment Team used this information to make changes to the design to increase visibility of patient rooms.
- Elliott reviewed the literature and shared that the best practice for ICU design is to include clinical team members, which was done with this project. Also, following transformative design principles, the open bays would be changed to single patient rooms. With this design, glass doors are used to provide visualization for patient safety; this design has shown improvements in infection control, sound control, delirium, comfort, and privacy. The additional layer of safety provided by virtual visibility of patients through the eICU camera has demonstrated improved safety in ICU patients.

January-March 2022

- Construction began on the design of CTICU.

April-June 2022

- Open forum presentations and unit-based meetings were held for all nurses and support staff members in CTICU. These two venues gave them additional opportunities to provide input into the design and workflows.
- Andy Heidinger, BSN, RN, Clinical Nurse CTICU, recommended that the charge nurse workstation be centrally located to provide visibility across the unit, increasing patient safety. Ceiling lift equipment was added to the design to improve the safety of moving patients. Conner Stallings, BSN, RN, Clinical Nurse CTICU, requested that multiple education sessions be offered on ceiling lift equipment after the move so staff members would be proficient in using it.

July 2022-May 2023

- Construction of the CTICU continued.
- Don Lemaire, BSN, RN, Manager CTICU, selected the nurse call options for the Responder 5 system.
- The Telecommunications department developed the Voalte phone directory for clinical nurses. Voalte phones ring when a patient or family member presses the call bell, ensuring a quick response by the clinical nurse or nurse tech.

June 2023

- An Open House was held for the clinical team to officially tour the new unit.
- Sain; Jessica Dunn, BSN, RN, Clinical Supervisor/Educator; and Eloise Lewis, Clinical Secretary set up the 10 patient rooms, nurses' stations, and equipment/supply rooms.
- CTICU was moved to the new 2E space.

The interventions were fully implemented by the end of June 2023.

The clinical nurses' involvement in the ICU Realignment Team and the design of the CTICU physical work environment resulted in an improvement in the CTICU patient fall rate.

References:

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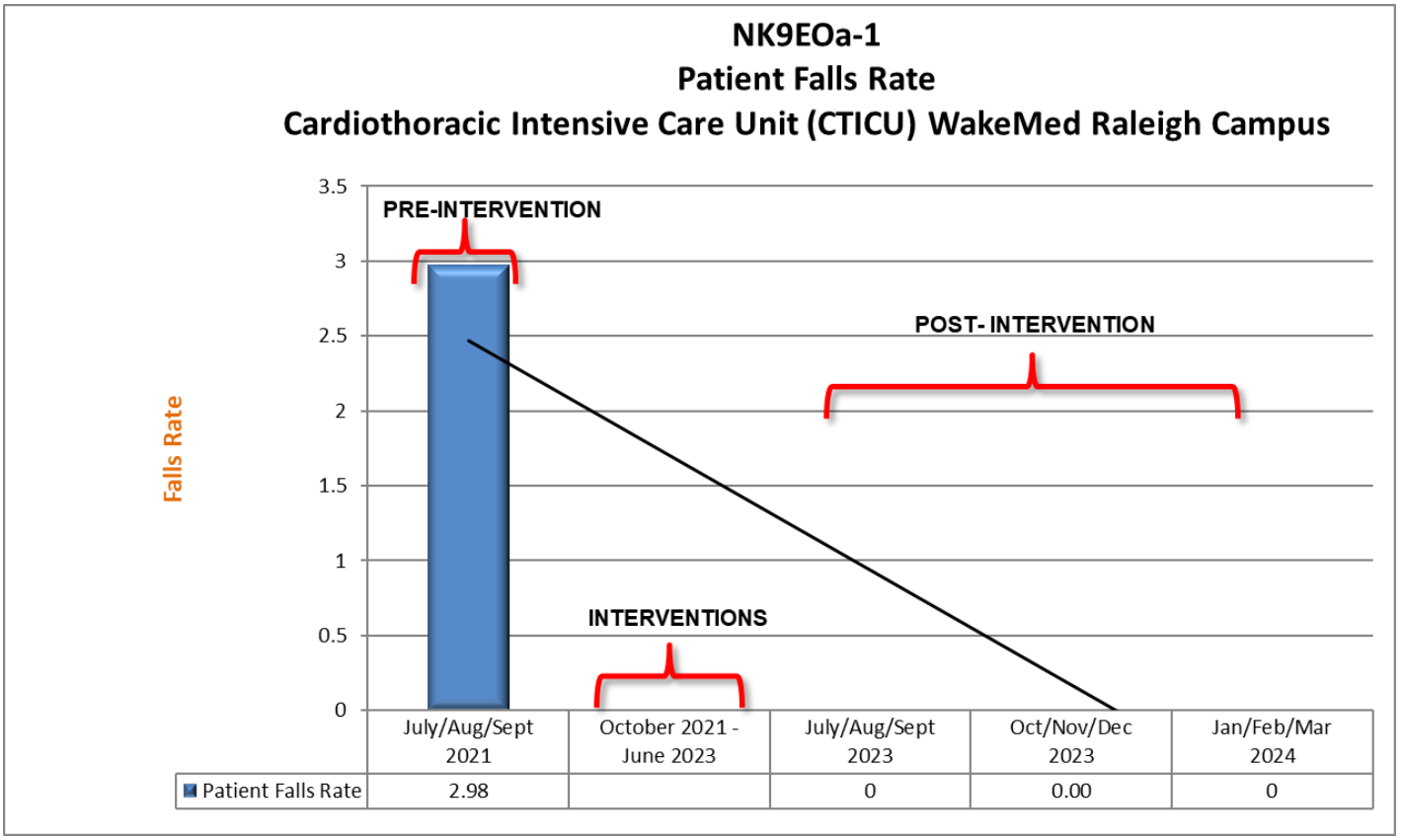
Halpern, N. A., Scruth, E., Rausen, M., & Anderson, D. (2023). Four decades of Intensive Care Unit Design Evolution and thoughts for the future. *Critical Care Clinics*, *39*(3), 577–602. https://doi.org/10.1016/j.ccc.2023.01.008

Verderber, S., Gray, S., Suresh-Kumar, S., Kercz, D., & Parshuram, C. (2021). Intensive Care Unit Built Environments: A comprehensive literature review (2005–2020). *HERD: Health Environments Research & Design Journal*, *14*(4), 368–415. https://doi.org/10.1177/19375867211009273

Outcome



(Evidence NK9EOa-1, Patient Falls Rate, Cardiothoracic Intensive Care Unit (CTICU) WakeMed Raleigh Campus)