

UC San Diego

Spring 2022 - UC San Diego Health Journal of Nursing: Pandemic Reflections

Title

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Permalink

<https://escholarship.org/uc/item/6fw8r8km>

Journal

UC San Diego Health Journal of Nursing, 15(1)

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Publication Date

2022-04-01

Peer reviewed

JMC 3GH ICU COVID-19 Innovations

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Prior to becoming a Registered Nurse, he spent 12 years in the U.S. Marine Corps. After the military, he pursued a career in nursing and graduated from the University of San Diego with a Master of Science in Nursing. He is passionate about nursing and has worked at UCSDH for over seven years, including in the IMU, ICU, and as a nurse educator. His beautiful wife, Janet, is an Occupational Therapist at UCSDH and together they have two daughters, Annabelle and Addison, and a baby boy, Jayden, all who were born at UCSDH.

Since the onset of the pandemic, 3GH ICU was challenged with caring for the most critically ill patients with COVID-19 while serving as the Jacobs Medical Center (JMC) COVID-19 cohort ICU. Two of the main interventions 3GH ICU employed for the most critically ill patients with COVID-19 were pronation therapy and Venovenous Extra Corporeal Membrane Oxygenation (VV ECMO). Pronation therapy and VV ECMO had been identified as therapeutic treatments for patients experiencing acute respiratory distress syndrome (ARDS), a disease process associated with severe COVID-19 cases.

Pronation therapy, the process of turning a patient from their back onto their abdomen, was occasionally performed on 3GH ICU as a respiratory therapeutic intervention prior to the pandemic. Manually proning a patient typically required about six staff members to safely execute, but would increase depending on the weight of the patient and number of medical devices in use, such as ventilators and ECMO machines. With the onset of COVID-19, the volume of patients that would benefit from proning significantly increased, which taxed staff physically and mentally. To assist with the proning process, 3GH ICU worked closely with Environmental Health and Safety (EHS) Specialists and the Nursing Education Development and Research (EDR) Department to implement the use of mechanical lift equipment for proning and supination (turning the patient from their abdomen to their back) to decrease both the physical demand and

risk of injury to staff members. The collaboration between EDR, EHS, and 3GH ICU began mid 2020 with unit demonstrations and evolved into in-services, staff friendly tip sheets, how-to videos, and presentations at the 3GH ICU education committee.

With the increased volume of prone patients, 3GH ICU recognized a need for interventions to prevent prone-specific hospital-related injuries to patients, including pressure related skin injuries, CAUTIs, aspiration events, and femoral nerve damage. To counter the incidence of pressure injuries, staff education focused on improving existing practices and implementing new interventions with unit in-services, tip sheets, just-in-time training, and discussion at the 3GH ICU education committee. 3GH ICU nurses were instructed to pad the philtrum, chin, and cheeks, lubricate nares and oral mucosa, and adopted a new device to secure the endotracheal tube (as opposed to twill ties). To reduce CAUTIs, 3GH ICU established the practice of performing urinary catheter care immediately prior to proning and immediately after supination. To reduce the risk of aspiration, the unit focused on placing post-pyloric feeding tubes prior to pronation. To help decrease femoral nerve damage, 3GH ICU physicians and nurses collaborated with other teams, such as neurology and pharmacy, to implement placement of extra padding on the down hip when positioning prone patients. Per Amy Bellinghausen, MD, Pulmonary & Critical Care Medicine, there had been no identified new cases of femoral

nerve damage since the addition of supplemental padding.

The most notable change the pandemic set in motion was the implementation of Venous-Venous (VV) ECMO on 3GH ICU. VV ECMO served as one of the most advanced lifesaving interventions for those with severe COVID-19 symptomology, such as respiratory failure. The introduction of VV ECMO within this unit required extensive collaboration with nursing staff, the pulmonary critical care team, and the ECMO team. 3GH ICU partnered with all stakeholders to develop training on the responsibilities of the primary RN when caring for a patient on ECMO, with the ultimate goal being to provide safe patient care and improve patient outcomes. The integration of VV ECMO within 3GH ICU improved outcomes and formed an integral component of caring for the sickest patients. Since the onset of the pandemic, there have been 81 COVID-19 patients on VV ECMO, 41 in 2020, and 40 in 2021. A total of 20 of the 2020 patients survived. Of the 2021 patients, 20 have survived or currently remain on ECMO. Per Cassia Yi, Clinical Coordinator, Mechanical Circulatory Support Program, these numbers are consistent with national survivability data.

In addition to the care provided to patients with COVID-19, the 3GH ICU continued to serve as the critical care unit for multiple specialties, including medical, surgical, oncological, neurological, and transplant patients. One of the most notable successes was 3GH ICU nurses cared for 91 liver transplant patients in 2020 and set a goal to surpass that number in 2021. 3GH ICU successfully cared for JMC's first live liver transplant donor and recipient, and continued to support lung transplant workups, which now include those with COVID-19. 3GH ICU nurses have also contributed their time supporting other units, volunteering at community vaccination sites, and providing critical care and education to Tijuana hospital staff, which are acts of kindness consistent with the culture and tradition of the unit. Despite the mental and physical challenges of the pandemic, 3GH ICU nurses have continued providing excellent patient care while improving their processes and innovating solutions.

Drawing by Ashley Elwell, BSN, RN

