A certified Comprehensive Stroke Center, The University of Tennessee Medical Center (UTMC) in Knoxville, Tennessee, cares for patients with stroke, brain tumors, traumatic injuries, and other diseases and conditions of the brain and spine. In February of 2018, UTMC opened a new state-of-the-art neuro-ICU – the result of incorporating advanced technologies and deeply considering the needs patients, families, and staff.

**THE CHALLENGE**

UTMC realized the shortcomings of its existing neuro-ICU, which increased over the years as medical technology advanced. The size of the patient rooms was inadequate for the latest point-of-care technologies and there was no room for family or defined workflows. The headwall – which provided utilities such as power, lights and gas delivery – prevented the use of a horizontal track patient lift system and made it difficult for staff to access the patient's head area. The unit was located on a lower level, which meant no natural light for patients and a gloomy experience for family members.

“To achieve our goal of providing the safest and most efficient care possible to our neuro population, we knew we would need to make significant changes to our patient room design,” says Bill Shingler, MSN, RN, NVRN-BC Nurse Manager, Neuro Critical Care.

Because of its commitment to being one of the nation’s leading neuro-ICUs, UTMC appropriated funds for a new state-of-the-art facility.

**THE SOLUTION**

The re-envisioned neuro-ICU is located in a newly expanded, light-filled tower and the patient room sizes have been virtually tripled – from 120 to 350 square feet. UTMC worked with Dräger to create the new room design at the Dräger Design Center in Telford, Pennsylvania, where staff members were able to gain hands-on experience through clinical workshops and fine-tune the environment prior to finalizing the design.

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UTMC chose the Dräger Ponta™ ES ceiling beam system for the core of each room. Designed to maximize flexibility, ergonomics and hygiene, the customizable supply system provides gas, electricity and IT connections—all ergonomically positioned in the column to eliminate tripping hazards. The Ponta’s streamlined size maximizes floor space, while a swiveling arm lets caregivers position the workstation at the head or side of the bed. To support hygiene and facilitate cleaning, the system lifts bedside medical equipment completely up off the floor.

As the industry’s only linear-movement service system, the Ponta can be individually adjusted to meet the needs of each patient. Nurses are able to move the shuttles (columns that suspend from the beam) laterally to be closer together or farther apart as needed for point-of-care equipment.

This also allows nurses to reorient patients to look out the window. Taking up less ceiling real estate than other overhead booms, the Ponta is less visually intrusive to patients and less likely to interfere with visibility between patients and families or block views to the window.

“One of the major improvements was Dräger’s overhead Ponta beam system, which gives us a quick, unobstructed path to the head of the patient’s bed. This access has proven extremely beneficial because neurosurgeons can now quickly and easily get to the patient’s head to provide necessary interventions.”

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**THE RESULTS**

**Improved workflow with 360° patient access**

Unlike the neuro-ICU’s former headwall units, which prevented medical staff from easily accessing the patient’s head area, the Ponta enables 360° access to the patient’s head – which is essential for critical procedures such as intubation, central line placement, and tracheostomies.

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Whereas the old rooms were so small that organized workflow was impossible, the new rooms are designed around streamlined workflow for the staff with wet and dry sides of the bed. A dedicated space for staff enables cross-functional teams, such as physical therapists, to help patients become mobile faster. This earlier mobility has been shown to speed healing and improve outcomes.

**Dedicated space for family**

The University of Tennessee Medical Center embraces the belief that family interaction is vitally important to the well-being of the patient. Indeed, studies suggest that family presence provides the social support necessary to create a less stressful environment, improve patient safety, and decrease ICU length of stay.

The new patient rooms have a dedicated space for family complete with a comfortable chair, a table, a full-length couch for sleeping, and a window with natural light. Nurses have visual sight lines to the patient, and the patient has unobstructed sight lines to the family. As a result, the new unit meets critical Guidelines for Family Centered Care in the ICU.

**Overhead patient lifts support positive financial outcomes**

The Ponta has enabled each patient room to have a ceiling-mounted patient lift, which can easily reach the entire length of the bed. The horizontal track system lifts patients safely, which may reduce staff injuries and turnover and help to decrease staff shortage due to injuries.

Ceiling lifts have been shown to significantly reduce costs associated with workers’ compensation and improve both productivity and nurses’ work lives. For example, the installation of more than 1000 ceiling lifts helped Christiana Care Hospital reduce injury costs by $1.2 million.

Because the lift acts as a virtual extra set of hands while moving patients and the Ponta is easy to maneuver with one hand, UTMC was able to reduce staffing in the two-patient rooms from two nurses to one.

“With the lift system, the nurses can now by themselves lift, reposition, and even walk patients around the room. Since we moved into the new space, not one team member has sustained a back injury of any type.”

**Adequate space for point-of-care equipment**

The new space-saving Ponta design provides ample room for the multitude of point-of-care equipment a neuro-ICU patient requires – which can include: portable X-ray machines, intracranial pressure monitors, ventilators, equipment for lumbar punctures and emergency hemicraniectomies, numerous intravenous lines, feeding tubes, suction pumps, drains and more.

The redesign of the neuro-ICU has been so successful that UTMC is planning a similar transformation of its neonatal intensive care unit in the future.

**FOR MORE INFORMATION ABOUT THE UNIVERSITY OF TENNESSEE NEURO INTENSIVE CARE UNIT, GO TO**

2 Source: https://insights.ovid.com/pubmed?pmid=28749855
3 Source: https://cloudfront.escholarship.org/dist/prd/content/qt8p96j3gd/qt8p96j3gd.pdf?f=t&oig8pz
4 Source: Nursing Spectrum, 12/5/05
5 Source: William A. Schmidt, CEO, Christiana Care