PRINT-Helping Rural Hospitals Adopt Telehealth Solutions

Implementing safe, secure and easy-to-use telehealth solutions is becoming increasingly important, especially as rural hospitals strive to provide expert care with limited resources. Hospitals face challenges to adopting new technology, but recent collaborative research shows on-site simulation for caregiver training and simple software solutions can ease the transition.

OSF HealthCare and the University of Illinois College of Medicine at Peoria, through Jump Simulation, collaborated with Chicago-based Northwestern University on a four-year, $750,000 grant from the Agency for Healthcare Research and Quality (AHRQ). The project created patient simulations that allowed for use of a telehealth cart that provided direct video communication with an electronic intensive care unit (eICU) in Peoria, Illinois to connect rural emergency departments with caregivers treating patients with severe sepsis and septic shock.

Sepsis is a leading cause of death in U.S. hospitals and it is common in patients with severe COVID-19. Dr. Steven Simpson, MD, professor of pulmonary and critical care medicine and medical adviser for the Sepsis Alliance, said in a recent Healthleaders.com article, "For COVID-19 patients who require ICU care, by definition, nearly all of them have sepsis. And we know the mortality rate for COVID-19 patients in ICUs is in the range of 30%-40%."

Kim Cooley, RN, and the research coordinator, said sepsis is the body's extreme response to infection that can lead to severe complications without timely treatment. So patients need to be intensely monitored.

"They can appear ok or not as severe when they enter emergency rooms and then go downhill really fast and if you don't initiate certain treatments within certain time frames after they start to go downhill, then they could die. So, this is a really important area that OSF is focused on," said Cooley.

Northwestern chose to partner with OSF HealthCare and Jump due to the system's simulation strengths, access to rural emergency departments, and a strong track record of telehealth, particularly use of its eICU. OSF HealthCare hospitals in Pontiac and Galesburg were the research sites.

William Bond, MD, an emergency department physician and director of research at Jump Simulation, says the study looked at expanded use of remote monitoring for rural emergency departments which have small staffs that can easily be overwhelmed if they have multiple severely ill patients. With sepsis patients, the research introduced remote monitoring earlier.

"To better connect patients in the ER to caregivers in the telehealth realm who would eventually be overseeing their care in the intensive care unit at those sites … so it helps make that transition earlier and helps to create a layer of back-up and extra monitoring to make sure we're meeting all the sepsis care goals," Dr. Bond explains.

Cooley says the monitoring included cameras on the telehealth cart, patient vitals as seen on in-room monitors, conversations between the ED staff and eICU nurses via telephone, or a combination of the three.

Patients can benefit from another set of eyes, according to Cooley.

"They can monitor the patient's vitals. They can have their eyes on the patient and can see them start to just kind of get confused and then they (eICU critical care nurse) can alert the nurse in the next room, 'I'm concerned about your patient in the next room, can you go in and check on them?'"

Simulation can instill confidence in adopting new technology and that happened in this case. Using survey tools and teleconferencing software, the researchers were able to measure the impact of the on-site simulation, which boosted confidence in the use of telehealth. Cooley said through simulation, doctors, nurses and other caregivers learned how to communicate with patients and their families about the new tools – another plus.

"During the simulation, they were able to practice introducing that telehealth cart to the patient so that takes some of the stress and awkwardness away if you can practice in a somewhat lifelike situation but you're not practicing on a patient the first time."

The simulations used a trained actor, also known as a standard participant, who indicated during debriefing sessions that in a real life situation, most patients and their families would find it comforting to know a remote eICU nurse was also keeping an eye on them. The three-act simulation used scenarios in which the patient continued to decline were followed by staged debriefings.

Results are still being evaluated, including the reluctance by some care team members to use the technology as it is currently set-up. These barriers can likely be overcome by improved telehealth integration, reducing or eliminating the need for a separate cart.

Bond says the research did confirm the value of the simulation and how it can be helpful for future telehealth integrations by OSF HealthCare or other health systems. The sepsis simulation toolkit is available on the Jump Simulation and Education website. The Jump Center and its resources can be used by other health systems which want to trial telehealth solutions through simulation.

Bond stresses, "We are fortunate to have a virtual hospital next to our real hospital (OSF Saint Francis Medical Center), or at the right time we can test it at the bedside, because there are many factors that simply can't be replicated. So, those process tests can be incredibly revealing and can find issues that you might not think would be the barriers or facilitators to the adoption of that technology in practice."

Here is a more detailed article outlining the research including exhibits.