

Telemedicine Extends Healing Ministry and Offers Innovative “Patient Safety Net”

BY JAMES D. WITT, MBA, RN

Electronic medicine has helped make Provena Health, Mokena, IL, a health care leader in northern and central Illinois. As a result of the enhanced intensive care unit (eICU) telemedicine technology the system implemented in June 2005, patients in 122 critical care beds in the system’s six hospital ministries now have around-the-clock monitoring by board certified critical care physicians (intensivists) and experienced ICU nurses from an off-site location. While the technology that enables this program would be unimaginable to the sisters who founded the system’s six acute care hospitals more than 100 ago, Provena’s initial telemedicine venture has become an innovative resource for advancing their mission.*

The Provena eICU Connection is based on Provena Health’s commitment to its mission to build communities of healing and hope by compassionately responding to human needs in the spirit of Jesus Christ. In providing patient care, that commitment to mission is manifested in the ongoing priority to provide the safest care possible for its most acutely ill patients.

THE eICU CONCEPT

In exploring options for enhancing the speed of response to patient needs, Provena was faced with a constraint common to hospitals in which residents and full-time hospitalists are

*Provena Health is cosponsored by the Franciscan Sisters of the Sacred Heart, Servants of the Holy Heart of Mary, and the Sisters of Mercy of the Americas.



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not part of the care delivery model—that is, physicians are not physically present in the hospital, specifically in the ICU, on a 24/7 basis. Various options were evaluated, including the recruitment of physicians to provide in-person coverage in the 11 Provena Health ICUs. But given the supply of appropriately credentialed physicians in the United States, this option proved unrealistic.

The eICU concept was developed in the late 1990s by two critical care physicians at Johns Hopkins Hospital,

Baltimore. The concept is based on two essential components—electronic connectivity and 24-hour clinician access. Interfaces are established between the local ICUs and a central Clinical Operations Room (COR). These interfaces provide eICU clinicians with access to both the electronic medical record and to near-real-time physiological monitors that mirror those at the nurses’ station a few feet

from the patient. Additionally, each bed is equipped with a high-resolution camera, microphone, speaker, and audiovisual server. Using the bedside camera at each bedside, COR physicians and nurses are able to zoom in on anything they need to see, including fluid levels, infusion rates, ventilator settings, and neurological signs.

The ability for physicians and nurses in the COR to see and interact with the patient and bedside caregivers is perhaps the most distinctive feature of the eICU as a care delivery model, but it would be ineffective without the real-time access to clinical expertise that it enables. “It is, not technology, but immediate access to expert clinicians that makes the eICU successful as a patient safety initiative,” says Jay Cowen, MD, medical director of the Provena eICU Connection. In order to emphasize the technology’s role as an enabler, rather than an end in itself, Provena decided to define the “e” in eICU as “enhanced” rather than “electronic.”

EVALUATING THE eICU

Studies in the medical literature have demonstrated that eICU concept can decrease mortality rates in ICUs by up to 25 percent. It can also make a significant impact on patients’ length of stay in the unit and reduce the frequency of clinical complications. To validate the impact of the eICU on patient outcomes, Provena Health invested significant time and

effort in developing a remote data-entry structure for capturing both adverse outcomes and “good catches.” This outcome-documentation process has been labeled the “eICU Safety Net Report.” It is utilized for tracking purposes and can be routed to the appropriate unit leaders and medical staff for follow-up and performance improvement purposes.

The strong focus on clinical risk management differentiates the Provena eICU Connection from similar programs in the United States, says Becky Rufo, RN, DNSc, the program’s operations director. Since the program’s inception, more than 750 eICU Safety Net Reports have been completed, trended, and analyzed for performance-improvement opportunities. In more than 100 of these instances, the results indicated that the

eICU’s ability to respond immediately to a change in patient condition likely made the difference in the patient’s survival in the unit. The program is nearing a point where APACHE scores and independently-tracked mortality data will allow evaluation of the impact of the eICU on ICU survival.

In addition to providing 24/7 oversight of the system’s ICU patients, the eICU Connection has also proven effective as a vehicle for disseminating leading clinical practices in the critical care setting. For example, intensivists in the COR routinely evaluate patients for safety interventions such as prophylaxis against blood clots and pneumonia associated with ventilator use. Where appropriate, the intensivists can order these safety-oriented interventions, since all are fully credentialed by the medical staff offices to practice at each of the six system hospitals.

Provena Health recently launched a systemwide initiative to utilize the eICU as the primary structure for implementing enhanced care measures for patients with sepsis and septic shock. Regular performance reports generated by “e-Care Manager,” the software that enables the eICU program, track the organization’s effectiveness in implementing these leading-practice initiatives.

THE HUMAN TOUCH REMAINS

The eICU represents an additional “safety net” for critical care patients and supports, but does not in any way replace the role of bedside caregivers. Staffing in the units covered by the eICU remain unchanged, and patients’ primary physicians continue to make their daily rounds and write their orders, as they always have.

“Considering the inevitable expansion of telemedicine in the years ahead, the eICU has made a short-term impact on

patient safety and the quality of care, and it has also provided an environment for our physicians, nurses, and other clinicians to see first-hand how technology can enhance the safety of clinical practice,” says Cowen.

In consultation with Provena Health’s health ethicist, Fr.

William Grogan, the system continues to pursue options for utilizing the eICU as a vehicle for identifying and responding to potential ethical issues in the care of critically ill patients. As Fr. Grogan notes, “This innovative technology provides a new way for us to scan the horizon of our patient care delivery system and to identify cases in which proactive ethics consultation has the potential to improve patient outcomes, effect ethically sound decision making, and enhance the organization’s

adherence to the *Ethical and Religious Directives for Catholic Health Care Services*. The active involvement of the eICU in ethics referrals is, as far as we know, an application of telemedicine technology that is unique to Provena Health.”

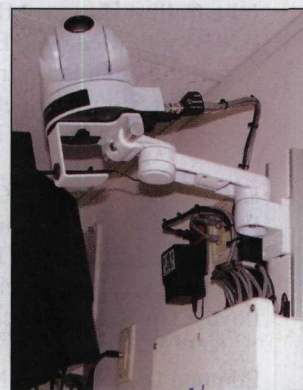
As the organization develops palliative care programs in its acute care ministries, the eICU is being explored as a potential source of referral and consultation for palliative care interventions. Palliative care has frequently proven to be preferable to the critical care unit as an option for caring for patients with chronic and end-stage disease processes. In the telemedicine model, it may be the intensivist monitoring the course of treatment who is in the best position to suggest alternative venues of care and facilitate referrals to a palliative care team when treatment goals are not being met in the ICU.

CARE FOR THE NEW CENTURY

As the eICU program develops and matures, Provena continues to explore options for leveraging its innovative technology to advance the organization’s healing mission. In thinking through new ways to integrate telemedicine into patient safety, clinical ethics, palliative care, and evidence-based practice initiatives, Provena has discovered that 21st-century technology can be effectively leveraged to support the unchanging mission of Catholic health care. ■



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