

Building a Sustainable Rural eICU[®] Model



HaysMedicalCenter

ORGANIZATION

- Nonprofit Tertiary Care Center
- Hays, Kansas
- Serving Northwest Kansas
- 192 beds

CHALLENGE

Maintaining high-quality critical care support for critically ill patients in rural communities.

SOLUTION

Contracted use of the eICU[®] Program for remote critical care support as an alternative to round-the-clock intensivists staffing.

BENEFITS

- Reduced mortality rates
- Increased revenue

“We have been expanding our use of telemedicine for years but believe the eICU[®] Program takes it to the next level. This program may well represent the new standard for delivery of high-quality, specialized care to rural communities”

— Dr. John Jeter,
HMC President and CEO

BACKGROUND

Hays Medical Center (HMC) is a 192-bed not-for-profit tertiary care regional health center serving northwest Kansas. It has the region's only open-heart program and is its sole tertiary care facility. Like many health care facilities in rural areas, HMC faced budget limitations and resource shortages that challenged its capacity to handle all of its critical care cases. Patients sometimes needed to be sent outside the region.

With acuity levels in the region on the rise, VISICU's eICU[®] Program presented a viable alternative to adding clinician resources. Dr. John Jeter, CEO of HMC and prior emergency medicine physician, became familiar with the program's benefits when a family member received care from a neighboring hospital with an eICU Program.

SOLUTION

As an alternative to investing in its own eICU Program, HMC investigated options for contracting eICU services to provide remote monitoring. The search for a health system partner with the eICU capability led HMC to contract with Saint Luke's Health System in Kansas City. HMC based this selection on the results that were being achieved with Saint Luke's eICU Program, its relative proximity and the fact that Saint Luke's was not considered a direct competitor to HMC. The live eICU link was established between the two hospitals in April 2006.

Saint Luke's had implemented VISICU's eICU Program in January 2005 to improve the quality and cost-effectiveness of its ICU services. Many health systems share Saint Luke's commitment to the eICU Program as a solution for addressing the growing nationwide shortage of intensive care physicians and critical care nurses. The program leverages an intensivist-led care team, supported by telemedicine and remote monitoring technology, to monitor hundreds of patients remotely in support of the bedside team. Patented Smart Alerts[®] enable eICU clinicians to track vital signs and laboratory trends and guide ICU staff interventions to avoid potentially devastating patient complications. Studies have shown that this type of care model can reduce ICU mortality by as much as 25 percent.

With the eICU link, critical care patients at HMC can be remotely monitored by intensive care nurses and physicians at Saint Luke's. As vital signs are checked, physicians can communicate directly with HMC patients and ICU staff through a video camera and speaker installed at the bedside. Nurses in the HMC ICU in need of immediate help with a patient can press a button mounted on the wall of the room to get direct physician attention. Additionally, family members may speak with the Saint Luke's support team through the audio/video conference connection.

In addition to HMC, the Saint Luke's eICU Center also monitors patients at four Saint Luke's hospitals in the Kansas City area. Overall, the system monitors more than 90 patients at a time, leveraging the experience of one physician and two nurses working within Saint Luke's Health System as well as the critical care expertise embedded in the VISICU system. Ultimately, the eICU Program can be expanded to cover more than 300 patients as needs dictate.

RESULTS

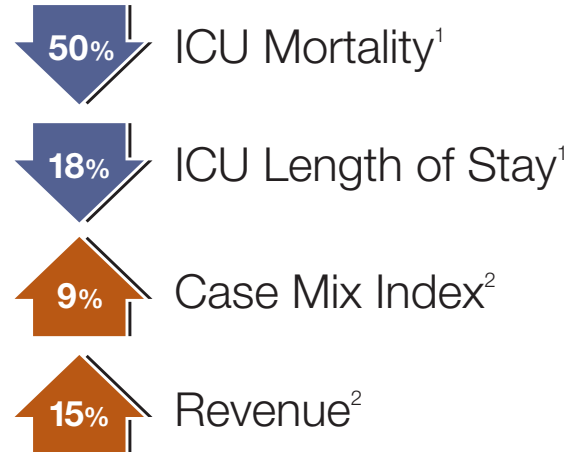
As a result of the support of the remote eICU Center, local physicians are aided in caring for their most critical patients. Patients who require immediate intervention can be prioritized and addressed more quickly. HMC's continuous access to critical care specialists has improved referral confidence throughout the region and enhanced community awareness; the sickest patients in western Kansas can now receive critical care close to home.

The eICU Program has led to a significant improvement in quality performance metrics at HMC. In the five quarters after program implementation, ICU mortality dropped by 50 percent, while ICU length of stay dropped by 18 percent. (Results are as compared with APACHE III® severity-adjusted predicted values.) Clear evidence of this impact on patient satisfaction is the number of complex cases which now remain at HMC rather than being transferred to another facility. This provides a clear testimony to the positive impact of the program on physician recruitment and patient satisfaction — an impact that is reflected by rising case mix acuity and revenue. Pre- and post-implementation data show a rise in the case mix index from 2.77 before program implementation to 3.02 after implementation, with a corresponding revenue increase of 15.3 percent.

In an area where acuity levels continue to rise and demands are ongoing for open-heart and other tertiary care specialists, the new technology has been integral in enabling HMC to continue to sustain its growth in a cost-effective and quality-efficient manner. Since implementing the eICU Program, HMC has recruited two new cardiology specialists and additional nurses to its care team. The nursing staff has been quick to embrace the new technology due to the direct benefits they are realizing from enhanced access to specialists and the corresponding impact on improved patient care. This has contributed to increased nurse satisfaction and retention. HMC's access to the eICU Program and its recent staffing additions have enabled it to expand its critical care services, including an expanded cardiac step-down unit and an additional ICU.

HMC continues to make positive strides in achieving its vision to be the Best Tertiary Care Center in Rural America. Through Dr. Jeter's focus on doing "what is right for the patient," the benefits are coming back home to HMC and its community. "This model is proving to be a sustainable model for care in Rural America," he says. "We are working with our legislators to expand government support and funding for these initiatives. It is likely to become the defacto standard for critical care moving forward."

Hays Medical Center Performance



¹ As compared with Apache predicted values
² Pre vs. Post eICU implementation

CONCLUSION

HMC is one of the first independent rural hospitals in the country to use contracted eICU services to demonstrate a sustainable model for enhanced quality performance. The results reflect those being observed nationwide, across many hospitals, where ICU and hospital mortality are being reduced an average of 25 and 22 percent, respectively. The proven and sustainable benefits of this approach to improving access to high-quality care for rural communities has captured the attention of key opinion leaders, legislators and the national media.

President Bush, who viewed a demonstration of Saint Luke's eICU Program as it accessed data and images from an HMC ICU, had this to say: "Saint Luke's Health System understands the power of technology to help compassionate doctors and nurses better do their job... A specialist sitting in Kansas City capable of analyzing graphs in a remote region...it's affordability and availability for health care."

HMC agrees. ▣

REFERENCES:

- 1) "Bush Visits HMC—Sort of," Phyllis J. Zorn, Hays Daily News, www.haysmed.com.
- 2) "Kansas City Hospital Link First of Its Kind," Phyllis J Zorn, Hays Daily News, www.haysmed.com.

FOR MORE INFORMATION:

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