



Telemedicine and Population Health

Leaders at Banner Health have developed a teleICU strategy that improves clinical outcomes and enhances population health and patient engagement efforts. **BY JIM MOLPUS**

Phoenix-based Banner Health is testing the theory that size, or scale, layered with an operational organization rather than a holding company, creates an exponential impact that can enable the delivery of higher-quality healthcare. In theory, a large health system can reduce waste and unnecessary repetition and variation by centralizing parts of the care system. The problem has been that the best, most reliable tool that health

systems had to throw at the value equation was more people, which does not necessarily create more value.

What Banner needed, says Robert Groves, MD, vice president of health management for Banner Health, was a “central nervous system” for the health system, and telemedicine became the ideal tool to test.

“What we’re doing is designing the future of healthcare and trying to figure out how we can significantly improve clinical outcomes and members’

quality of life while cutting out at least 30% of waste from the system,” Groves says. Banner Health CEO Peter Fine and the board set the strategic path aligned with the Institute for Healthcare Improvement’s Triple Aim: simultaneously improving the health of the population, enhancing the experience and outcomes of the patient, and reducing per capita cost of care for the benefit of communities. Specifically what Banner Health set out to do a decade ago was to find ways to more tightly manage patients who were part of capitated arrangements, either through its own Banner Health Network or other value-based contracts.

“One of the best ways to do that is to develop a central nervous system for the organization for those value-based patients and then deliver services to them virtually, through telehealth,” Groves says. “So it’s a nice marriage, actually, of the concepts of value-based care, telehealth, and care delivery design



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all coming together to make a really exciting package.”

So where to begin? Deborah Dahl, vice president of patient care innovation, says, “We learned early on that the telehealth tool, starting in the ICU, allowed us a platform to meet that Triple Aim.”

Telemedicine has been a tool in the ICU for many years, often for a consultation when a difficult case presents. But that was too episodic to make a major difference in key measures, including length of stay. Even if Banner wanted to rapidly increase the number of bedside intensivists for 24-hour coverage, there simply were not enough, Dahl says. “I believe there were about 8,000 intensivists across the country. In order to pull that off across the U.S., we needed 33,000. Telemedicine was a way to take intensivists’ amazing cognitive skills and spread them from Fairbanks to Phoenix and to focus their work on what that patient needs that is not hands-on.”

Launched in 2006, Banner’s teleICU operations center is in Mesa, Arizona, and added other physician sites in Tel Aviv, Israel; Santa Monica, California; and in a new partnership with National Jewish located in Denver. The teleICU physicians and nurses monitor ICU patients in 430 ICU beds in 22 Banner hospitals across five states.

Each of Banner’s ICU rooms is equipped with eICU technology from Philips, which includes a two-way audio-video system and a bedside monitor that sends real-time vital signs to

THE EVENT

The speakers for the December 4, 2014, three-hour event—HealthLeaders Media LIVE From Banner Health in Phoenix, which focuses on a teleICU strategy that improves clinical outcomes and enhances population health—are:

- >Deborah Dahl, vice president of patient care innovation, Banner Health
- >Robert Groves, MD, vice president of health management, Banner Health
- >Hargobind Khurana, MD, medical director for Banner Telehealth, Banner Health
- >Julie Reisetter, RN, chief nursing officer for Banner Telehealth, Banner Health
- >Michael Simons, MD, medical director for Banner Estrella Medical Center Intensivists
- >Predrag Pavlovic, DO, family medicine physician

the teleICU team. The system interfaces with the electronic medical record so the teleICU and bedside teams can view lab results or medication orders.

Dahl and Groves emphasize the teleICU team is not replacing bedside nurses or physicians. The teleICU service provides four critical backup needs, Groves says:

1. Immediate response by a specialist to a request for help from the patient or bedside team. “That immediate availability of an intensivist virtually in the room is a big piece of it,” Groves says. “They can start working on the problem immediately while we wait for the bedside team to arrive or in lieu of the bedside team in certain circumstances.”
2. Monitor for adverse trends before they become adverse outcomes.
3. A safety net to ensure compliance with best practices and to prevent unnecessary testing. “So when I

say that 30% is waste, well, it’s because we run tests we don’t need to in some cases and because we don’t run tests we do need to in other cases. So the third role of a telemedicine strategy is to make sure that we’re aligned with evidence-based practice.”

4. Continuously measure “so that we can continue to improve it.”

It took some time, but the workflow of the teleICU and bedside teams have become complementary, says Dahl. The nature of intensive care is a balance between constant monitoring and urgent intervention. With the teleICU team support, the bedside team can deal with the immediate issues and still have time to develop a comprehensive plan of care, she says.

“One example: How do we make sure deep vein thrombosis prophylaxis happens for every appropriate patient?” Dahl says. “The Philips tools tell us there are 40 patients out of the 450 ICU patients that may need the treatment. The teleICU nurse can review the patient’s record and say, ‘Yes, out of the 40 identified without an order, five patients probably shouldn’t have an order, but the other 35 probably should. The teleRN and teleIntensivist will review the charts and, if appropriate, an order will be written and the bedside RN will deliver the prophylaxis.’ This shared responsibility keeps the entire team on their toes for routine work that has to happen.”

THE POPULATION HEALTH OPPORTUNITY

Overall, more than half of healthcare leaders consider population health management to be an opportunity for their organization. The percentage is higher among health systems.

	Overall	Hospital	Health system	Physician organization
Opportunity	75%	71%	84%	75%
Threat	8%	11%	4%	6%
Neither	17%	18%	12%	19%

NOTE: This chart includes data segmentation from the Premium edition of the report.

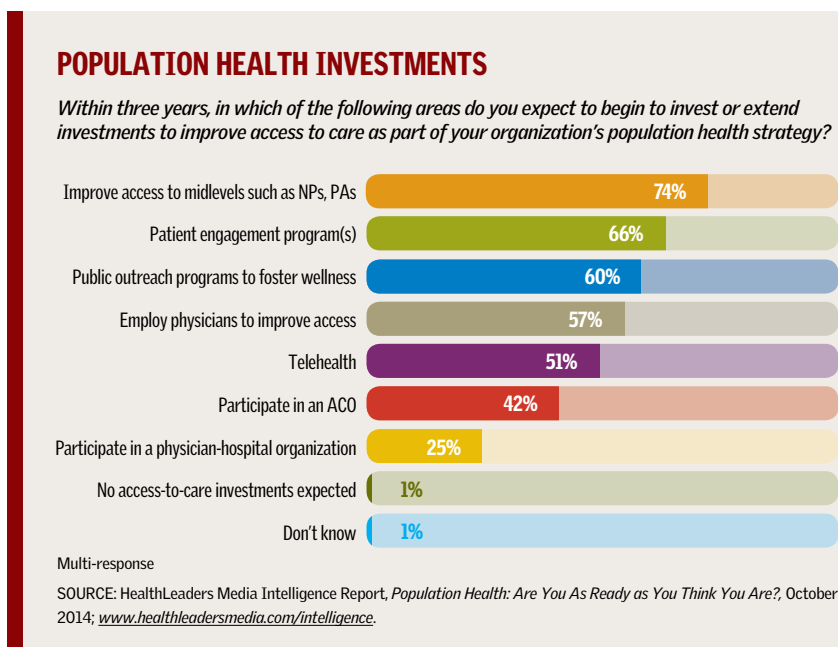
SOURCE: HealthLeaders Media Industry Survey 2014: Forging Healthcare’s New Financial Foundation, January 2014; <http://hlm.tc/1diJynt>.

Michael Simons, MD, medical director of Banner Estrella Medical Center Intensivists, says the multidisciplinary team has distinct roles for the bedside and teleICU intensivists.

“The bedside intensivist is engaged in the day-to-day patient management of the sickest subpopulation of the critical care patients,” Simons says. “They’re involved in triage evaluations of whether patients should be coming to the ICU, or whether they should be ready to move to a lower level of care. They expedite the multidisciplinary rounds. They’re involved in procedures on a limited number of patients. They also are in charge of communicating with the teleICU team any nonobvious information that needs to be in the medical record.”

The bedside intensivist sets the daily care plan, Simons says, and “the teleICU team picks up that ball of the daily care plan and helps to continue it through the nighttime hours when the bedside docs aren’t in house.”

Similar to the physicians, the work of the teleICU and bedside nurses is from the same foundation, but with some



through a camera. But again, that’s something very similar to what the bedside nurse would do.”

The monitoring that the teleICU nurse is able to do with the technology allows for more nuance and specificity, she says, which in critical care is a distinct quality driver.

and chronic health evaluation, Banner’s teleICU has “dramatically moved the needle,” Groves says.

“Our patient mortality is running at 50% of what APACHE would predict, and we’ve been there for almost three years now, so that has been a sustainable transition. At the same time, our length of stay is 30% lower than the APACHE standard. It is a proven strategy and a proven methodology that dramatically impacts patient care,” Groves says.

Those numbers translate into another part of the Triple Aim, which is lower cost, Dahl says. Even though the teleICU team was an addition—with no other changes to bedside nurse and physician ratios—Banner still saved considerable cost.

“Last year, we had more than 20,000 fewer ICU days than were predicted and more than 40,000 fewer hospital days than were predicted,” Dahl says. “That has avoided cost of about \$68 million in a single year. Combine that with more than 2,000 people who lived that were predicted to die, and you have the best of both worlds.” ■

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different tools and responsibilities. Julie Reisetter, RN, chief nursing officer for Banner Telehealth, Banner Health, notes that the American Association of Critical Care Nurses recently added a CCRN-E exam, which is a distinct certification for teleICU nurses.

When comparing the bedside and teleICU nurse roles, “there are more things that are the same than are different,” Reisetter says. “Our nurses round on patients based on their acuity. Now, they do that by looking at the data and they do that by interacting and assessing

“One of the differences is the number of patients that they can help,” Reisetter says. “The Philips software is a population management tool. So what that allows our nurses to do is to manage 45 to 50 patients. The software has some very sophisticated alerts, trending, and algorithms that bring information to the nurse in a very different way than it does at the bedside.”

The results have been measurable and substantial. Using the severity of disease standard for intensive care called APACHE, for acute physiology

Jim Molpus is leadership programs director for HealthLeaders Media. He may be contacted at jmolpus@healthleadersmedia.com.

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