

Improving care for heart surgery

Case study

When Bob, a man in his 60s, woke up from sedation after four hours in heart surgery, he wasn't hooked up to a ventilator with a stiff plastic breathing tube inserted between his vocal chords. He was breathing on his own and was able to swallow, eat and drink. An intensive care nurse was not needed to suction saliva from his throat once every hour. He was able to talk to his wife about how he was feeling. And because he was able to breathe on his own within hours, his risk of developing pneumonia was close to zero. He didn't need medication to calm him and that made it possible for him to be up and walking the next day.

Thanks to an innovative program to safely remove patients from ventilators as soon as possible after heart surgery, Bob's experience is typical to that of nearly nine out of ten heart surgery patients at Regions Hospital. The benefits to patients from this program are impressive: faster recovery, fewer complications and less time in the hospital.

Early removal from ventilator after heart surgery improves care, lowers medical costs

HealthPartners and Regions Hospital are involved in an initiative of the Institute for Healthcare Improvement to develop models of care that simultaneously accomplish three objectives: improve health, deliver excellent consumer experience and reduce the cost of care.

This report details one initiative to achieve these three aims by helping patients breathe on their own within six hours after undergoing heart surgery. This is achieved by removing the breathing tube earlier than traditional medical practice and reduces the risk of infection, the need for intensive care and lowers the cost of care.

The challenge

It is standard medical practice in the U.S. for cardiac surgery patients to be sedated and have a breathing tube in place the first night following heart surgery. However, longer duration of ventilation and time in intensive care units increases the risk of pneumonia and other hospital-acquired infections. Improvements in anesthesia and system changes to allow coordinated, intensive care from heart surgery through post-operative care can reduce the need for extended ventilation for most patients.

The solution

Regions Hospital implemented an early extubation program in 2011. The program is designed to have safe, early removal of the ventilator breathing support of patients who have heart surgery, either prior to leaving the operating room or within six hours after surgery.

How they did it

Changes during heart surgery:

- Minimize the amount of fluids used during the surgery which reduces stress on the heart
- Shorten time on the heart-lung bypass machine
- Keep the patient warm to improve recovery time
- The surgeon and anesthesiologist provide a risk assessment for each patient to determine if the ventilator can be safely removed early

Changes in anesthesia practices:

- Depression of the respiratory system is one side effect of narcotic pain relievers. This program uses so-called fast-track anesthesia, which has a lower dose of narcotic pain relievers. This allows patients to spend less time under anesthesia, have fewer postoperative complications and less pain, to be awake and able to breathe on their own sooner.
- Strictly monitor use of fluids which can put pressure on the heart
- Assess each patient for risks such as other illnesses to ensure that early removal from ventilators can be done safely

Changes after surgery:

- Care is provided by an intensivist who is present 24/7 in the intensive care unit to closely monitor patients. Regions is among only 30 percent of the nation's 6,000 hospitals that meet intensivist staffing standards of The Leapfrog Group, an independent organization that compares hospitals' performance on safety, quality, and efficiency.
- Limit unnecessary use of narcotics
- Nurses are trained to minimize use of sedatives, monitor patient recovery and to begin assessment for safety of ventilator removal as soon as possible under the guidance of an intensivist

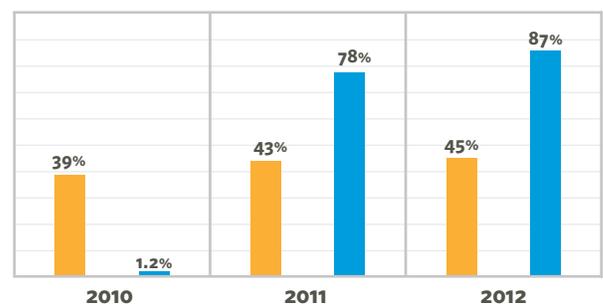
Results

In 2010, Region's heart program was similar to most others across the United States where fewer than 42 percent of patients benefitted from early removal of a breathing tube. Within one and a half years after implementation, nearly 90 percent of patients at Regions had early extubation following heart surgery.¹

¹ Data is based on coronary artery bypass surgery patient outcomes through Sept. 2012

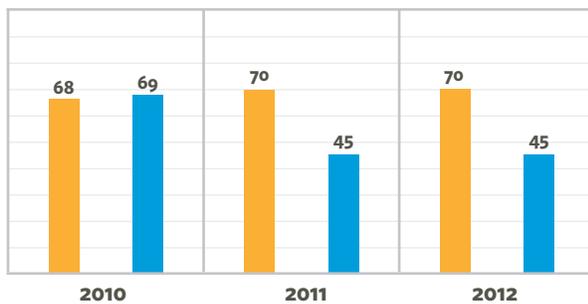
- 1. Nearly nine out of ten heart surgery patients were able to breathe on their own within six hours after surgery, twice the rate of the national average.**

Early removal of breathing tube*



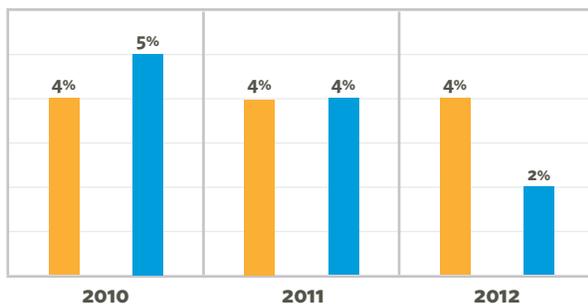
- Patients who had ventilators removed early were able to leave the intensive care unit one day sooner, decreasing medical costs by \$2,000/per patient and lowering the risk of infection.

Average number of hours in ICU



- This program reduced the chance of having a breathing tube reinserted by half.

Percentage of patients who require reintubation



KEY

- National Data**
- Regions

* Jan. - Sept. 2012

** National rate is based on the Society of Thoracic Surgeons (STS) Adult Cardiac database of 1,110 hospitals, which includes Regions Hospital. This allows a risk-adjusted comparison of patient outcomes to other hospitals that do heart surgery across the U.S.

Improved patient experience

Early removal from mechanical ventilation sooner benefits patients by:

- Allowing them to be up and active sooner
- Reducing the discomfort of having a breathing tube and ventilator support
- Reducing post-surgical confusion due to less need for narcotic painkillers
- Removing the breathing tube allows patients to talk to caregivers and family

Lower medical costs

For patients who had heart surgery at Regions Hospital in 2011:

Total medical costs decreased an average of \$2,000 per patient.

About HealthPartners

Founded in 1957, HealthPartners (www.healthpartners.com) family of health care companies serves more than 1.4 million medical and dental health plan members nationwide. It includes a multispecialty group practice of more than 1,700 physicians; five hospitals; 50 primary care clinics; 21 urgent care locations; 21 dental clinics; and numerous specialty practices in Minnesota and Western Wisconsin. HealthPartners is the largest consumer-governed, nonprofit health care organization in the nation providing care, coverage, research and education to improve the health of members, patients and the community. HealthPartners is the top-ranked commercial health plan in Minnesota and is also ranked among the top 30 plans in the nation according to NCQA's Health Insurance Plan Rankings 2012-13 - private.