Soaring to New Safety Heights

Medical center changes workplace culture with innovative safety training program.

By Paula Ketter

UNIQUE AVIATION-BASED safety training has helped a Tennessee medical facility make huge strides in patient safety and quality care.

In 2003, Vanderbilt University Medical Center's chief medical officer, Dr. John Sergent, made a bold statement about the Tennessee medical facility's future: "Our goal is to make Vanderbilt the premier institution in the country when it comes to safety."

While many of the medical center personnel admit that VUMC is not there yet, none would disagree that the training the facility undertook three years ago has helped the hospital gain respect among its peers.

"The difference between where we were three years ago and where we are today is dramatic," says Dr. Drew Gaffney, associate dean for clinical affairs. "I believe that the crew resource management or CRM training provided the foundation and created the awareness to make it happen."

Recent high marks in two industry surveys for hospital patient safety have validated this recent culture shift at Vanderbilt. The hospital ranked in the top 10 of almost 900 hospitals that sub-mitted information for the 2005 Leapfrog Hospital Quality and Safety Survey.

Further confirmation that VUMC's safety training is working was a recent top-five finish on the University Health-system Consortium's list of safest hospitals. The extensive study of quality and patient safety included data from every patient from academic medical centers that met strict UHC criteria.

"By giving people the tools to help them avoid error, we are creating a culture of safety," says Dr. Rhea Seddon, assistant chief medical officer of the Vanderbilt Medical Group. "We wanted to improve our safety record."

Eye-opening experience

Five years ago, the nation woke to a crisis in patient safety when an Institute of Medicine report highlighted studies suggesting that medical error was responsible for between 44,000 and 98,000 deaths per year. That statistic ranks medical errors in the top five causes of death annually in the United States.

A study in the early 1990s reported that the average intensive care unit patient experience almost two errors per day, which translates to a level of proficiency of 99 percent. If applied to the airline and banking industries, that proficiency level equates to two dangerous landings per day at O'Hare International Airport in Chicago or 32,000 checks deducted from the wrong account per hour.

"You see things happen every day that don't have to happen," Gaffney says. "I realized that if there had been a system in place, the proper training, or someone had spoken up, a bad thing would not have happened. Physicians want to help people. These failures in the system forced us to begin to look at ways to do better."

Gaffney stresses that VUMC doctors and nurses are committed to safety and have based their lives on helping patients, so medical error occurs more often because of flaws in the system, not individual intentions. "Most problems don't occur because of lack of medical skill or knowledge," he explains. "Medical personnel are highly trained, highly skilled, and highly motivated. They really want to do a good job. It's the systems put in place that cause morbidity and mortality."

When VUMC committed itself to improving patient safety and quality, Memphis-based Crew Training International's healthcare arm, LifeWings Partners, provided some solutions.

Culture change

Using proven safety tools and practices that are utilized throughout the U.S. military and commercial aviation, LifeWings teaches safety and risk management training services that consistently produce measurable results.

As aviation technology improved during the late 20th century, the role of human error in plane crashes became more apparent. Many of the crashes were traced to poor communication among pilots, crew, and ground control. Decades of study led the military to develop training to make safety awareness and good communication a habit among flight crews. Training in crew resource management is now mandatory for all U.S. military aviation units and commercial airline crews.

Seddon and Gaffney have firsthand knowledge of aviation practices. Both were astronauts with NASA and were part of the crew that flew a nine-day mission in June 1991. That Columbia shuttle mission was the first dedicated to biomedical studies.

The crew resource management training that Vanderbilt began in 2003 teaches participants about patient safety breakdowns and how to avoid them, team building, recognizing adverse situations, cross-checking and communication, decision making, and performance feedback.

"As humans, we all make mistakes, but we can minimize those mistakes if we create a standardized approach to healthcare," Gaffney says. "It was pretty clear that if we didn't get the skills in place and if we didn't start moving toward a culture change, we would only achieve a fraction of we needed to achieve."

LifeWings began its affiliation with VUMC when it initiated safety training in the nursing school. When a physician sat in on the classroom training, he immediately alerted senior leadership at VUMC that the facility would benefit from this type of patient-centered training.

Comprehensive training

Classroom training is only one small part of crew resource management.

"Training alone doesn't change behaviors," explains Richard Clark, vice president of LifeWings. "If you get any type of attitude change with a training course, it will be short-lived at best."

Before the classroom training takes place, LifeWings works with the facility leadership to prepare the organization to make the culture shift. Everyone from senior administrators and senior medical directors to the nursing staff attends a boot camp, which highlights the ins and outs of rolling out this comprehensive CRM project throughout the hospital.

"To really be able to change the culture, the client has to have ownership of the program," Clark says. "This sets the tone for the program."

Vanderbilt has implemented CRM by medical center department and in the medical school. VUMC has trained about 2,700 employees and put CRM into practice in the emergency room, trauma center, obstetrics and gynecology department, the oral surgery outpatient clinic, and the surgical ward. They are continuing the training and will eventually implement this type of care throughout their four hospitals. At the moment, senior medical students receive the training, but Gaffney plans to introduce this new way of thinking to freshman medical students.

Before starting the classroom training, LifeWings conducts a safety climate survey to determine how a certain department perceives the organization's attitude toward safety practices and patient safety issues. Then, LifeWings assesses each department to find inherent built-in errors that are systemic problems and to evaluate how the team communicates and deals with conflict.

After LifeWings reviews the survey and assessment, they return for the classroom training. The comprehensive course (see "Classroom Safety Training Modules" on this page) shows attendees how aviation training can be applied to patient safety and quality care by talking about how to create an effective team (crew), how to communicate effectively (briefings), how to recognize red flags and what to do about them, how to make an informed decision, and how to critique performance (debriefing).

"Everyone is overwhelmingly enthusiastic about the training," Gaffney notes. "We do pre- and post-course questionnaires and about 97 percent of the attendees say the training will help them personally and professionally."

The only part that has been a tough sell is the fatigue/sleep deprivation module. Although no one disagrees that fatigue plays a major role in accidents and errors, physicians have no choice but to be on-call for a 24-hour period.

"Aviation has addressed this issue by limiting the number of hours a flight

Preventable Medical Errors

ONE IN FIVE Americans (22.8 million) report that they or a family member have experienced a medical error of some kind (The Commonwealth Fund 2002).

About 7,000 people die annually from medication errors (Agency for Healthcare Research and Quality 2002).

61 PERCENT of the serious and life-threatening errors are associated with IV medications. (D.W. Bates, October 2001)

Preventable injury resulting from medical mistakes cost the economy between $17 BILLION AND $29 BILLION annually (Institute of Medicine 1999).

crew can work in a day and in a month. The crew can not work more than 100 hours a month—they have a fixed amount of hours that they can not be called in to work," Gaffney explains. "Medicine, a few years ago, limited the number of hours house staff can work in a week to 80. We have a rule that residents and fellows can only work 80 hours

a week, and after they have been on-call for 24 straight hours, they have to stop having assigned duties and be out of the hospital by the 30th straight hour."

Physicians, Gaffney says, hear the data on fatigue, but they are forced into a system of work, even though we are now telling them this is not a good way to do it. "This course tells them when the best time to get sleep is, some critical data about circadian rhythm disruption, and more. We are trying to help them make the most of a bad situation," he explains.

Clark and Gaffney both agree that the most important part of the training begins after the eight-hour classroom course. LifeWings then hardwires the departments to implement the strategies and tools needed to improve safety. Vanderbilt created checklists for certain procedures, such as patient handoffs, medication administration, and briefing and debriefing sessions.

"It is all geared around stopping human beings from making mistakes," Clark says.

Gaffney agrees, adding, "To make the training effective, you have to hardwire the change. If you don't do that organizationally, then you lose credibility."

Vanderbilt recently implemented an S-BAR model that is based on a standardization model used by the military's nuclear submarines. When an officer is in charge and a new office comes in to take over, the officer in charge gives the new officer a standardized briefing called an S-BAR:

- **S**ituation—current situation
- **B**ackground—quick history
- **A**ssessment—situation evaluation
- **R**ecommendation—remedies.

"Vanderbilt is using this method to standardize handoffs," Clark explains. "That way, any physicians or nurses coming on duty will know the situation and if some information is not given to them, they know to ask for it."

The final part of the safety training process involves observation, coaching, and feedback. It's the last thing done in the department assessment.

Patient involvement

To improve safety and quality, patients must be part of the process.

"We are very concerned about getting the right patient and the right procedure, so we make the patient part of the briefing process," Gaffney says. "We ask the patient to state their name and we explain the procedure."

Vanderbilt, using a popular local news anchor, has created a video that patients are asked to view when they enter the hospital. It stresses the importance of asking questions about medication, medical procedures, and more.

"We are creating post-briefing surveys to ask the patient if they felt like they were in the care of a team that looked at them as an individual," Seddon says. "We will definitely be doing more of that in the future."

Return-on-investment

Gaffney and Seddon agree that the investment was worth it.

"We perform between 35,000 and 40,000 operations per year, and we have virtually eliminated the wrong surgery," Gaffney said. "And the percentage of safety reports involving actual or potential harm to patients in the operating room is down."

The Joint Commission on Accreditation of Healthcare Organizations has started to require a series of systems that are right out of the CRM textbook, such as briefings and making sure you have the right patient for the right procedure.

"We are almost at 100 percent compliance of the Joint Commission's requirements, and that has not been easy for us," Gaffney says. "A lot of hospitals are still struggling with that."

The cost of the program, Gaffney notes, is paid for if you have one less wrong site surgery a year. "If we prevent one major malpractice case a year, we have paid for CRM tenfold. We know we've done that," Gaffney says.

"A lot of healthcare providers consider malpractice to be a cost of doing business," he adds. "The idea that malpractice expense can be managed is something that most medical personnel don't realize. Quality and patient safety should be a business strategy." **TD**

Paula Ketter is the managing editor of *T+D* ; pketter@astd.org.