Greetings!

It's truly an honor and privilege to be in the beautiful Shenandoah Valley leading a strong, community-based organization with a strong tradition of excellence and exceptional employees, medical staff members and volunteers. My family and I have been welcomed warmly since our arrival in June, and we look forward to a long presence. Thanks for your generous welcome and hospitality.

Although I have spent most of my career in nonprofit health administration in larger cities from Chicago to Washington, D.C. to Dallas, I was born, raised and educated in North Carolina and feel right at home in this part of the country.

America, Virginia, Valley Health and each of us face very real challenges in health care. Across the country, healthcare providers are under significant pressure—from federal and state government, insurance payers, employers and patients—to control costs, improve quality, enhance service and increase access to care. We face growing physician and clinical staff shortages at a time when demand will increase because more of us will be older and sicker.

Whatever lies ahead, Valley Health is committed to offer excellent services, replace aging facilities, develop services to meet the needs of our region and use technology to increase patient safety and minimize duplication and risks of error. And we are committed to working smarter and more effectively while being good stewards of the resources entrusted to our care.

Valley Health is much more than just a sum of its parts. I feel we can be stronger, more robust and more effective through collaboration, sharing better practices and continuing to serve as outlined in our Vision: "Trusted to Deliver the Best Experience. Every Time. Every Place."

I am excited and impressed with this organization, its medical staff and volunteer boards, its accomplishments and the opportunities that lie ahead to improve the health of its communities.

Sincerely,
Mark H. Merrill
President & CEO, Valley Health

When Minutes **Matter**

A new initiative from Winchester Medical Center puts wireless 12-lead electrocardiogram (EKG) technology in the field to expedite lifesaving care.

A rural heart attack victim may have a 30- to 40-minute ambulance ride to the emergency department. Advanced Life Support emergency medical technicians have potent tools, but the best outcome relies on reaching a hospital with a cardiac catheterization lab where the blocked vessel can be opened with balloon angioplasty.

Reducing "door-to-balloon" time has long been a priority at Winchester Medical Center, since every minute blood is blocked from reaching the heart means more cardiac muscle death. Recently, the focus has broadened to include first responders in the field.

"In emergency medicine, we know that accessing definitive care as soon as possible offers the best patient outcome," explains Jack Potter, MD, medical director of Emergency Services at Winchester Medical Center and regional medical director for the Lord Fairfax EMS Council. "We are able to capture high-quality diagnostic info in a patient's living room, but in our rural area we've been hampered in our ability to communicate these findings to the hospital."

In 2008, with support from local technology companies working with Intel and Dell and funding from the Winchester Medical Center Foundation and The Heart & Vascular Center, Dr. Potter launched a trial to equip six advanced life support ambulances with wireless transmission technology. The system was tested in remote, geographically challenging areas and by May of 2009, another 20 ambulances in the region had been outfitted with wireless equipment.

"The whole idea is to save lives and minimize debilitation by reducing incident to balloon time," says Don Jackson, chief at Gainesboro Volunteer Fire & Rescue and director of Emergency Services for Clarke County. "The 12-lead technology enables us to recognize high priority patients and alert the on-call Cardiac Catheterization Lab team so everything's ready when we arrive."

Tired of Being *Tired?*

Since his sleep study and obstructive sleep apnea diagnosis earlier this year, Jim Martin has gained a valuable friend: his continuous positive airway pressure (CPAP) mask.

"I feel like a new person," the 42-year-old says. "I used to wake up still feeling tired and thought it was natural to be sleepy during the day. I have energy I haven't had since I was a kid!"

According to the National Institutes of Health, more than 12 million Americans are affected by sleep apnea. Are you one of them?

Obstructive sleep apnea (OSA) is a disorder that occurs when something—usually the soft tissue in the throat—partially blocks the airway. As a result, sleep apnea sufferers don't get the oxygen they need during sleep, and that lack of oxygen causes them to wake as often as hundreds of times a night. In addition to chronic fatigue, untreated sleep apnea also can lead to a multitude of health problems, including heart disease, headaches, weight gain, erectile dysfunction, depression and memory problems.

"Sleep apnea is mostly diagnosed through a sleep study," says Yashica Marshall, MBS, BS, director of Valley Health's Neurodiagnostic and Sleep Center. "However, there are risk factors—such as neck circumference and body mass index—that increase a person's risk of sleep apnea and may help alert him or her that he or she is at an increased risk for the condition."

CATCH YOUR ZZZs

Valley Health's Neurodiagnostic and Sleep Center staff is available to clinically identify and treat problems to help patients receive the benefits of restorative sleep. If a sleep study diagnoses obstructive sleep apnea, a continuous positive airway pressure (CPAP) machine may be prescribed to resolve the sleep apnea.

"A CPAP machine can help the patient receive continuous positive airway pressure during sleep, which helps the patient fall asleep and stay asleep," says Jeffrey Lessar, MD, pulmonologist who works closely with the sleep lab staff at Valley Health's Neurodiagnostic and Sleep Center. "The experienced and knowledgeable staff at Valley Home Care also can help assist patients with CPAP setup—including establishing the proper pressure for the tank—in order to help them live happier, healthier and safer lives."

High-Tech Glove Makes OSA Diagnosis Easier

Valley Health's Neurodiagnostic and Sleep Center has a new home test for sleep apnea—the Watch-PAT.

"In the past, all patients would have to come to our center and stay overnight for a sleep study," says Jeffrey Lessar, MD, pulmonologist. "However, this new technology offers certain patients a convenient alternative—a sleep study in the privacy of their own home. Amazingly, the results can be read the very next day."

With a prescription from a primary care physician, Neurodiagnostic and Sleep Center staff meet briefly with eligible patients and show them how to use the Watch-PAT.

The glove-like device uses painless probes on the fingers to measure the user's peripheral arterial tone (PAT), oxygen saturation, rest/active cycles and pulse rate. Information is stored in a memory card in the device and downloaded the next day to a computer in the sleep lab.

"Not only does the Watch-PAT offer patients convenience, but it gives physicians a more accurate reading about the patient's behaviors while the patient is sleeping in a more normal setting," Dr. Lessar says. "It's a great first-line tool that will help us with the diagnosis of sleep apnea."

LIFESAVING Teamwork

By Tom Urtz

Will Orndorff sprinted across the outfield intent on gloving the fly ball. As it arrived, so did diving teammate Sheldon Stickley. The punishing head-to-chest collision knocked Sheldon unconscious. Will fell heavily, too, and didn't move. Inside, his heart quivered. Then it died.

It was March 31. Will and Sheldon, members of the Strasburg High School baseball team, were practicing on their home field in sunny, 60-degree weather.

The devastating collision left Sheldon with a concussion. The blow to Will's chest triggered a condition called commotio cordis—literally commotion of the heart—where the organ's electrical rhythms are grossly disturbed. The pumping process turns spastic, and then shuts down. As the flow of blood and oxygen ceases, life ends—unless precise interventions occur without delay.

JUMPING TO ACTION

In an instant, the field went silent. Jeff Smoot, the Rams' coach for more than 25 years, rushed to the boys. Recognizing Will's dire circumstance, he began chest compressions and mouth-to-mouth resuscitation.

Joe Loving, a firefighter/paramedic with Shenandoah County Fire & Rescue, was a mile away at his home station when he got the 911 dispatch. In two minutes he was beside the boy, defibrillator in hand. After affixing the pads and getting an okay from the machine, he ordered "clear," and fired. For anxious seconds they waited…and then there was one beat, and then another. Will had a pulse and was breathing.

Joe inserted a breathing tube and placed an IV line. When AirCare 4 arrived, Will was placed in the helicopter and flown to Winchester Medical Center, a level II trauma center.

RUSHING TO THE HOSPITAL

Judy Orndorff was at work when she got the frightening call about her son. She hurried to the hospital and saw Will as they rolled him in. "I touched his hand and he opened his eyes but it wasn't anything I considered a response," Judy says. "He wasn't acting right."

Jack Orndorff was in Woodstock having his truck serviced when Strasburg town manager, Kevin Fauber, called.

"He told me 'there's been an accident. It's William," Jack remembers. "They started CPR and have him back.'"

With Jack's truck still perched on the lift, the garage owner handed him the keys to a loaner and said 'Go!'"

COMMOTIO CORDIS EXPLAINED

Commotio cordis is rare. Between 1996 and 2007, the National Commotio Cordis Registry documented 188 cases. Ninety-six percent of the victims were male with an average age of just under 15. Ominously, less than one in five survived.

Blunt trauma to the chest doesn't always trigger commotio cordis. Research found that blows to the chest set off ventricular fibrillation only during a narrow window in the cardiac cycle, a 15 to 30 millisecond span representing about 3 percent of a complete cardiac cycle. Blows outside that time could inflict damage, but the heart doesn't typically stop.

Thanks to the quick thinking of his coach, a paramedic, and a team of physicians at Winchester Medical Center, Will Orndorff survived a rare heart trauma called commotio cordis.

INNOVATIVE TREATMENT

Winchester cardiologist James Warner, MD, evaluated Will.

"His heart was probably going to be fine but our concern was brain function," Dr. Warner says. "He was completely unresponsive. How much damage would he have for lack of oxygen?"

Consulting with neurologist Neil Crowe, MD, Dr. Warner wanted to "pull out every stop for someone that young to make sure he had the best chance of coming out of this well."

They focused on the hypothermia protocol—a technique that can preserve brain function for someone who has undergone cardiac arrest that Dr. Crowe has used about a dozen times. The patient is sedated and given drugs to induce paralysis, and the body is chilled to about 90 degrees by applying ice and using a cooling blanket. About 18 hours later, you slowly reverse the process and wait for a result.

Dr. Crowe knew they were "getting to the outer time limit to consider cooling, but Will wasn't coming around the way we would have liked." He conducted a quick literature search to affirm their approach and the Orndorffs consented.

The goal is to spare brain damage. Deprived of oxygen, neurons receive a signal to self-destruct. The signal comes in the form of a chemical reaction that triggers the release of enzymes that are fatal to neurons. As the neurons die, swelling occurs in the brain, and disability and death can follow.

Hypothermia short-circuits this downward spiral by stalling the chemical processes triggering cell death. With oxygen restored, and bodily functions reduced to a state of suspended animation, the neurons have time to shake off the insult and return to work.

FIRST RESPONSE

Wednesday evening, staff began warming Will—one degree an hour. At 4:30 Thursday morning, Judy and Jack were with their son when he stirred. As Mom moved around the bed he followed her with his eyes.

"I asked him if he could respond, and he squeezed my hand," Judy says. "That's when the party began!"

Later, Dr. Crowe conducted a brain test. "He came running out hollering and almost jumping up and down," Jack recalls. "He said 'He's going to be good.'"

Later, as the Orndorffs met with friends in the waiting room, the 17-year old came walking down the hall, triggering cheers.

QUICK ACTION=SUCCESS

For Dr. Warner, the great outcomes go back to the coach who started CPR and the EMT with the defibrillator.

"I am happy I was in the right place at the right time, and that I had 14 years of training to call on," says Joe. This was his first encounter with commotio cordis.

He knows CPR is often delayed because observers underestimate the trauma. When CPR is delayed longer than three minutes, survival plunges to less than 5 percent.

Jack is grateful for all the teamwork. "It's a miracle Will came from where he was to where he is now," Jack says. "I read up on the condition, and it says he had a 15 percent chance of making it if everything—from A to Z—was done right. I've known Coach Smoot all his life, so this really makes it special."

BACK ON THE FIELD

Will and Sheldon rejoined the team after a few weeks. On the first game back, Coach Smoot put one in right field and one in left.

"He used the centerfielder as a cushion," the happy dad jokes.

Neurologist Neil Crowe, MD, Rhonda Kiracofe, RN, and cardiologist James Warner, MD, in the Cardiovascular Surgery Intensive Care Unit at Winchester Medical Center, where Will received hypothermia treatment. The three were part of a larger regional team whose individual actions made the difference in Will's recovery.