

TECHNOLOGY

Transforming HEALTH CARE

New technology at area hospitals

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PRECISE TARGETING OF BREAST TUMORS

The Valley Hospital in Ridgewood was the first hospital in North Jersey to offer breast seed localization, a more accurate and patient-friendly procedure to pinpoint and remove small benign and cancerous breast tumors or abnormal breast tissue.

A radiologist injects a low-energy radioactive "seed" the size of a grain of rice into the breast tissue to mark the exact location of the tumor or abnormal tissue. In the operating room, the breast surgeon uses a handheld gamma detection probe to locate and remove both the seed and the abnormal breast tissue.

"Once the seed is removed with the breast tissue, all radioactivity is eliminated," says Dr. Laura Klein, medical director of The Valley Hospital Breast Center.

Breast seed localization, in many cases, may replace the need for wire localization – a procedure that involves inserting a guide wire into the breast several hours prior to surgery, leaving the wire protruding from the skin until removal in the operating room.

"We can place the seed the day before, or several days before, surgery, and then the patient can return for surgery closer to the time of the procedure without the discomfort of having the wire in place while she waits," says Dr. Jaclyn Calem-Grunat, director of Breast Imaging at Valley.



FIRST U.S. PATIENT IN GENE THERAPY CLINICAL TRIAL

Holy Name Medical Center in Teaneck is the first hospital in the United States to participate in a groundbreaking clinical study, STOP-PAD, which may help prevent patients from needing limb amputations by growing tiny blood vessels. Holy Name's patient, an 81-year-old man with advanced peripheral artery disease (PAD), is the first person in the country to be treated with JVS-100, a gene therapy that activates natural repair processes in the body.

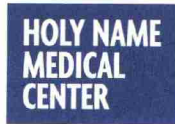
PAD is a narrowing of the arteries to the legs, stomach, arms and head due to a build-up of plaque. The disruption or complete stoppage of blood flow causes a number of symptoms and can eventually be life-threatening.

Holy Name's interventional radiologists, led by Dr. John Rundback, medical director of the Interventional Institute, perform minimally invasive procedures that clear vascular paths and help repair circulation.

Rundback performed one of these procedures on the patient's leg before injecting JVS-100 near the site of a wound that wasn't healing.

"The use of an advanced biologic is an exciting and innovative step forward in the field and may establish a new standard of care for treating diabetic and other patients with difficult and leg-threatening vascular wounds who otherwise face the possibility of major amputation," Rundback says.

This clinical trial was given Fast Track designation by the FDA and follows a previous smaller study. In that trial, a majority of patients experienced less pain, a reduction in ulcer size and an improvement in their overall feeling of wellness, according to Joseph Pastore, senior vice president of Juventas. Patients reported no significant side effects except some temporary soreness at the injection sites.



ACCUVEIN COURTESY OF THE VALLEY HOSPITAL; GENE THERAPY COURTESY OF HOLY NAME MEDICAL CENTER

ILLUMINATING THE ROADMAP TO EASIER BLOOD DRAWS

Blood drawing for patients with hard-to-reach veins just became a lot easier and less painful at The Valley Hospital, thanks to a small handheld device that lights up veins like a roadmap. With the AccuVein illumination device, the need for multiple needle sticks to try to hit a good vein for a blood draw is a thing of the past.

Hemoglobin in the blood absorbs the infrared light of the device. When the device is held above the skin, veins appear noticeably different than the surrounding tissue.

The AccuVein illumination device has been phased into use in several Valley Health System departments, including pediatrics and diagnostic imaging.

"Several patients have commented that they have felt a lot more comfortable during blood draws and IV insertions with the vein illuminator because of not needing multiple sticks," says David Rivera, director of cardiac services at Valley Hospital's Heart & Vascular Institute.



PRECISE SPINE SURGERY

Hackensack University Medical Center is the first hospital in New Jersey to offer Mazor Robotics Renaissance Spine Surgery, which uses a state-of-the-art guidance system.

Mazor Robotics technology was clinically validated to ensure 1.5 millimeters accuracy for increased patient safety as compared to freehand spine surgery.

Before entering the operating room, surgeons use Renaissance to pre-plan the optimal surgery in a CT-based 3D simulation of the patient's spine. During surgery, Renaissance guides the surgeon's hand and tools to the precise pre-planned location. In a recent multicenter study published in Spine Journal, investigators stated that Mazor Robotics technology "offers enhanced performance in spinal surgery when compared to freehand surgeries, by increasing placement accuracy and reducing neurologic risks."

Dr. Patrick A. Roth, chairman of neurosurgery at HackensackUMC adds, "Spinal surgery should always be viewed as a last option, as there are always risks and complications involved in any type of surgery. However, our patients can rest assured knowing that if the need arises for surgery, HackensackUMC provides a minimally-invasive procedure, using the most-advanced technology available."



NEW APP PUTS THE HOSPITAL IN THE PATIENT'S HAND

As part of its continuing effort to be at the forefront of technology in the health care space, Hackensack University Medical Center has unveiled HackensackUMC Mobile Access. The smart phone app allows patients within the HackensackUMC community to access their medical data, search for and connect with Hackensack physicians, and even see up-to-date wait times in the emergency room.

Some of the app's key features include:

MY CHART: Designed to be fully compatible with Apple HealthKit, MyChart communicates with the HealthKit app to log patient data, which is then easily integrated with HackensackUMC's electronic health-record system, providing physicians with valuable health data on their patients.

ALERTS: Notifications remind patients of upcoming appointments.

DOCTOR SEARCH: Browse through the physician directory or search for a specific doctor to pull up contact information.

ER WAIT TIME: Updates on wait times are continuously updated so patients can know before they go.

The app is available to download for free in the Apple iTunes App Store.

HYBRID OPERATING ROOM USES REAL-TIME IMAGING

Conditions with few to no symptoms, like blood clots in the lower extremities (deep vein thrombosis) and weakening in the blood vessels (aneurysms), are some of the most complex and challenging to treat. By the time a person feels pain, these conditions may be life-threatening and emergency surgery may be the only option.

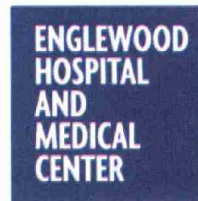
Englewood Hospital and Medical Center's Ronald and Helen Lefcourt Hybrid Operating Room combines state-of-the-art imaging technology with the amenities of a traditional operating room.

"The hybrid OR has changed the way we treat complex vascular issues, like deep vein thrombosis and aortic aneurysms, both of which can be life-threatening if left untreated," Dr. Thomas Bernik, chief of vascular surgery at Englewood Hospital and Medical Center, says. "We can now use advanced imaging technology to view a surgical area on high-definition monitors while performing high-level procedures using minimally invasive techniques. This allows us to be more accurate and precise, which leads to better results for our patients."

Abdominal and chest aneurysms involve blood vessels that travel to the head, neck and abdominal organs and can be especially deadly if they burst, which could result in fatal internal bleeding. With this new technology, vascular surgeons can quickly access, isolate and fix the aneurysm while allowing blood to flow through the other vessels.

Those experiencing deep vein thrombosis may notice leg swelling or pain, but often don't realize it is a serious condition. If the clot breaks loose it can cause a pulmonary embolism in the heart and lungs. Using the hybrid OR, surgeons can access the clogged vessels and aggressively treat and remove the clots. In these types of procedures, the patient usually can be discharged the next morning.

The hybrid OR's unique environment gives surgeons the ability to safely and quickly transition patients from a minimally invasive procedure to an open one without ever moving them, saving valuable time and reducing any additional risk. ♦



MAZOR ROBOTICS COURTESY OF HACKENSACK UNIVERSITY MEDICAL CENTER
 HYBRID OPERATING ROOMS COURTESY OF ENGLEWOOD HOSPITAL AND MEDICAL CENTER