

Advanced Medical TECHNOLOGY

Leading Health Care in the Chattanooga Area

BY JENNI FRANKENBERG VEAL

Cutting-edge medical technologies and advanced medical procedures are offering innovative and life-saving treatment options for doctors and patients around the world. In the Chattanooga area, health care facilities, along with some of the most skilled physicians in the world, are leading the way in providing new medical technology for advanced procedures and specialized care. What follows is an overview of some of the latest and most advanced treatment options offered in the Chattanooga area performed by local medical professionals.

Radisurgery

Radisurgery is a highly precise form of radiation therapy that directs narrow beams of radiation from different angles to effectively kill a tumor or abate a lesion. It is considered a noninvasive procedure that has been used as an effective alternative to surgery or conventional standard fractionated radiation therapy for treating small tumors and other select medical conditions.

CyberKnife® Robotic Radisurgery System: The CyberKnife Robotic Radisurgery System is a noninvasive alternative to surgery for the treatment of both cancerous and non-cancerous tumors anywhere in the body, including the prostate, lung, brain, spine, liver, pancreas and kidney. The treatment – which delivers beams of high-dose radiation to tumors with extreme accuracy – offers pain-free, non-surgical options for patients who have inoperable or surgically complex tumors or who may be looking for an alternative to surgery. The CyberKnife System uses image guidance software to track and continually adjust treatment for any patient or tumor movement. Additionally, it allows patients to breathe normally and relax comfortably during treatment without the use of rigid head frames to minimize movement. *{Currently offered at Erlanger Health System}*

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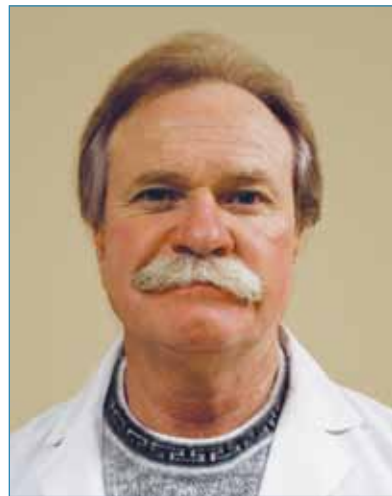
The CyberKnife Robotic Radisurgery System

Kindred Hospital

Chattanooga

Dedicated to Advanced Medical Care

The mission of Kindred Healthcare, Inc., which operates 83 long-term acute care hospitals across the U.S., is to promote healing, provide hope, preserve dignity and produce value for each patient, resident, family member, customer and employee served. This commitment to excellence is reflected in the medical professionals associated with the hospital and their leadership and dedication to providing the best and most advanced medical care.



DR. CHARLES BRICE

Dr. Charles Brice is a graduate of the University of Tennessee in Knoxville. He earned his doctorate in medicine from the University

of Louisville Medical School and completed his residency in general surgery at the University of Tennessee Clinical Education Center – Chattanooga where he has since served as a Clinical Instructor in the general surgery program. Dr. Brice specializes in wound care and serves as the Director of Wound Care at Kindred Hospital.



DR. JAMES BUSCH

Dr. James Busch is a graduate of the University of Tennessee Medical School, where he was inducted into Alpha Omega Alpha and

awarded the Benwood Academic Scholarship. Dr. Busch completed his diagnostic radiology residency and fellowships at Harvard Medical School. He is a national expert and consultant in the field of percutaneous radiofrequency ablation, a procedure which utilizes a probe to kill cancerous tumors with a combination of heat and friction, offering hope to patients who are not good candidates for traditional surgical options. He is a staff radiologist at Kindred Hospital.



DR. JOSEPH BUSCH

Dr. Joseph Busch completed his undergraduate studies at the University of Tennessee in Knoxville and earned his medical doctorate at the University of Tennessee in Memphis. Dr. Busch speaks nationally and internationally on the field of diagnostic radiology and has written several renowned publications. One of the founders of Diagnostic Radiology Consultants, Dr. Busch has served the Chattanooga medical community in various organizations. Dr. Busch is currently involved in guidelines for advanced imaging in the field of prostate cancer and serves as Director of Radiology at Kindred Hospital.

DR. MICHAEL CZARNECKI

Dr. Michael Czarnecki is a graduate of the Air Force Academy in Colorado Springs and earned his doctorate in medicine with specialty training in pulmonary and critical care from Baylor College of Medicine in Houston, Texas. As a pulmonologist and critical care intensivist, Dr. Czarnecki is active in both the clinical treatment and research for minimally invasive diagnosis and staging of lung cancer, pleural based lung disease pathogenesis, COPD exacerbation control, and airway stenting indications and complications. He currently serves as Director of Pulmonary Care at Kindred Hospital.



DR. RACHNA GUPTA



Dr. Rachna Gupta, DPM, completed her podiatry surgical residency training at Wyckoff Heights Medical Center in Brooklyn, New York. In 2010, Dr. Gupta began using an advanced wound care system that increases the minimum expansion of skin to 100 times. The system allows doctors to harvest and expand the skin, enabling them to use less of a graft in a larger area. The procedure is used for both acute and chronic wounds and can be performed in an outpatient setting. Dr. Gupta, offers this procedure at Kindred Hospital.

DR. RANDY HEISSER

Dr. Randy Heisser is a graduate of Louisiana State University and earned his doctorate in medicine from Louisiana State University Medical Center. He completed his residency at Louisiana State University Medical Center Department of Family Medicine and since was awarded Fellowships with the Willis-Knighton Health System and North Caddo Memorial Rural Family Practice. Dr. Heisser specializes in family medicine and serves as President of the Medical Staff at Kindred Hospital.



For more information on Kindred Hospital in Chattanooga, visit online at: www.kindredchattanooga.com or call (423) 266-7721.

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Novalis TX™ Radiosurgery: Novalis Radiosurgery consists of a high-tech radiation delivery system powered by sophisticated image-guidance and motion management tools. Most tumors or lesions are irregular in shape – Novalis Radiosurgery shapes the radiation beam precisely to the tumor or lesion, ensuring the best possible treatment dose is delivered while healthy tissue is protected. The radiation beam also adapts to a patient's breathing and other body movements to continuously maintain safe, complete and accurate treatment. *(Currently offered at Memorial Health Care System)*

Radiation Therapy

Radiation therapy uses high-energy radiation to kill cancer cells by damaging their DNA. X-rays, gamma rays and charged particles are types of radiation used for cancer treatment. Cancer cells whose DNA is damaged beyond repair stop dividing or die. When the damaged cells die, they are broken down and eliminated by the body's natural processes.

Radiation used for cancer treatment may be delivered to the body from a machine outside the body (external-beam radiation therapy) or from radioactive material placed in the body near tumor cells (internal radiation therapy or brachytherapy) or injected into the bloodstream (systemic radiation therapy). The type of radiation therapy prescribed by a radiation oncologist depends on many factors. A patient may receive radiation therapy before, during or after surgery, depending on the type of cancer being treated.

Xoft Axxent® High Dose Rate (HDR) Electronic Brachytherapy (eBx) System®: The Axxent HDR eBx technology utilizes a miniaturized high dose rate X-ray source to apply radiation directly to a cancerous site. The goal is to direct the radiation dose to the size and shape of the cancerous area, sparing



Dr. James Busch, CEO, Specialty Networks; Diagnostic Radiology Consultants
Director of Informatics and Medical Director of Chattanooga Outpatient Center

"...percutaneous RFA can be used as an alternative to traditional more invasive open surgical procedures with similar results. Most importantly, it can be used when no other treatment option can be tolerated by the patient to remove the cancer. Therefore, the procedure is able to provide hope to patients who are fighting cancer and hope is one of the keys to winning that battle."

healthy tissue and organs. Brachytherapy has proven to be a highly successful treatment for cancers of the endometrium, breast and skin.

Axxent HDR eBx technology also features Intraoperative Radiation Therapy (IORT) capability, which means that patients can receive radiation therapy at the same time they undergo a surgical procedure. The treatment can be performed just after a tumor is removed, thereby allowing some patients to complete their entire course of cancer therapy at one time. *(Currently offered at The Sarah Cannon Cancer Center at Parkridge Medical Center)*

Oncologic Radiofrequency Ablation (RFA)

Radiofrequency ablation (RFA) is an FDA-approved minimally invasive medical procedure that has been used to destroy cancer or other dysfunctional tissue by generating heat from a high frequency alternating current.

Guided by computed tomography (CT) or ultrasound, a physician, typically an interventional radiologist, inserts a needle-like RFA probe through the skin and into the tumor. High-frequency electrical currents are then passed through the electrode, generating heat that destroys the abnormal cells. Months after the procedure, dead cells turn into a harmless scar.

Radiofrequency ablation is performed to treat tumors in lung, liver, kidney, bone and occasionally other organs. Generally, RFA is used to treat patients with small tumors that started within the organ (primary tumors) or that spread to the organ (metastasis). Since the procedure can be performed through a small incision in the skin and utilizes conscious sedation, not general anesthesia, it is less risky and has fewer complications than traditional open surgical procedures. It can also be repeated multiple times to achieve a successful result and can be combined with other treatment modalities like chemotherapy and radiation. *(Currently offered at Tennessee Imaging Downtown, DRC's ablation center, located in Kindred Hospital)*

da Vinci® Surgical System

The da Vinci Surgical System is a state-of-the-art surgical platform that is changing the experience of surgery for people around the world. The da Vinci allows surgeons to offer minimally invasive options for complex surgical procedures.

The da Vinci Surgical System consists of a surgeon's console, a high resolution 3-D vision system, and a patient-side cart that includes either three or four robotic arms that execute the surgeon's commands. The surgeon controls the robotic arms from the console. Each of the arms works through tiny incisions, called operating ports.

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TUMORS CAN'T HIDE FROM

CyberKnife

Exclusively at Erlanger

BY SUSAN SAWYER

Until now, cancer patients with inoperable or surgically complicated tumors had few, if any, treatment options in the Tennessee Valley. Moreover, additional medical conditions like emphysema or heart disease or age-related complications have often meant that patients may not be able to withstand traditional cancer treatments, such as chemotherapy or surgery.

But the arrival of CyberKnife is changing everything for cancer patients in the region. Available exclusively at the Erlanger Health System, CyberKnife restores hope for cancer patients who previously had no other local treatment options.

Although the name CyberKnife may sound like a procedure that involves cutting, the actual treatment doesn't require the piercing sharpness of a knife. This advanced technology combines the use of robotics and image guidance to deliver beams of high-dose radiation to tumors with extreme accuracy. With the equipment's precision, CyberKnife actually minimizes damage to surrounding healthy tissue. In fact, this



breakthrough technology is a pain-free, non-surgical treatment option for both cancerous and non-cancerous tumors throughout the body.

In fact, CyberKnife treatment almost sounds too good to be true. It's an outpatient procedure that doesn't even require hospitalization. It doesn't require anesthesia, allowing patients to undergo treatment without sedation and immediately resume their normal daily activities. It doesn't cause uncomfortable side effects that patients often experience with traditional cancer treatments. And since CyberKnife

treatment does not require surgery, patients face minimal risks and few post-treatment complications.

Better yet, cancer patients can be treated with CyberKnife in fewer visits over a shorter period of time than traditional treatment methods. "The CyberKnife's high-dose radiation treatments can be effective in just one to five treatments," explains Dr. Frank Kimsey, radiation oncologist at Erlanger. "That means patients usually will be done with radiation treatments within a week and have minimal side effects."

Moreover, the CyberKnife has the capability to prolong or save the lives of those who may have formerly lost their battle due to the absence of treatment options, as well as patients who had previously been classified as having inoperable cancer. "From a quality-of-life standpoint, anything we're able to do to avoid toxicity in cancer treatment is critically important," adds Dr. Kimsey.

And it's important to know that tumors can't hide from the CyberKnife. The CyberKnife system is the first and only robotic radiosurgery system designed to treat tumors anywhere in the body, including the brain, spine, lung, liver, pancreas, and prostate.

Tumors in the spine, for instance, can be difficult to remove through surgery and challenging to treat with radiation because of the close proximity to the spinal cord. With traditional radiation therapy, the spinal cord could be damaged by moving into the radiation field, resulting in loss of movement or feeling or even paralysis.

But the CyberKnife system tracks tumor and patient movement during treatment, minimizing the risk of damage to surrounding healthy tissues and critical structures like the spinal cord. Through the use of computer-controlled robotics and continual image guidance, CyberKnife delivers high-dose beams of radiation from any direction with pinpoint accuracy—even accounting for the patient's slightest movement during treatment.

The CyberKnife radiosurgery program at Erlanger is the only cancer treatment of its kind within a 100-mile radius of Chattanooga. Call 423-778-LINK(5465) or visit www.erlanger.org to learn more about this revolutionary cancer treatment option.

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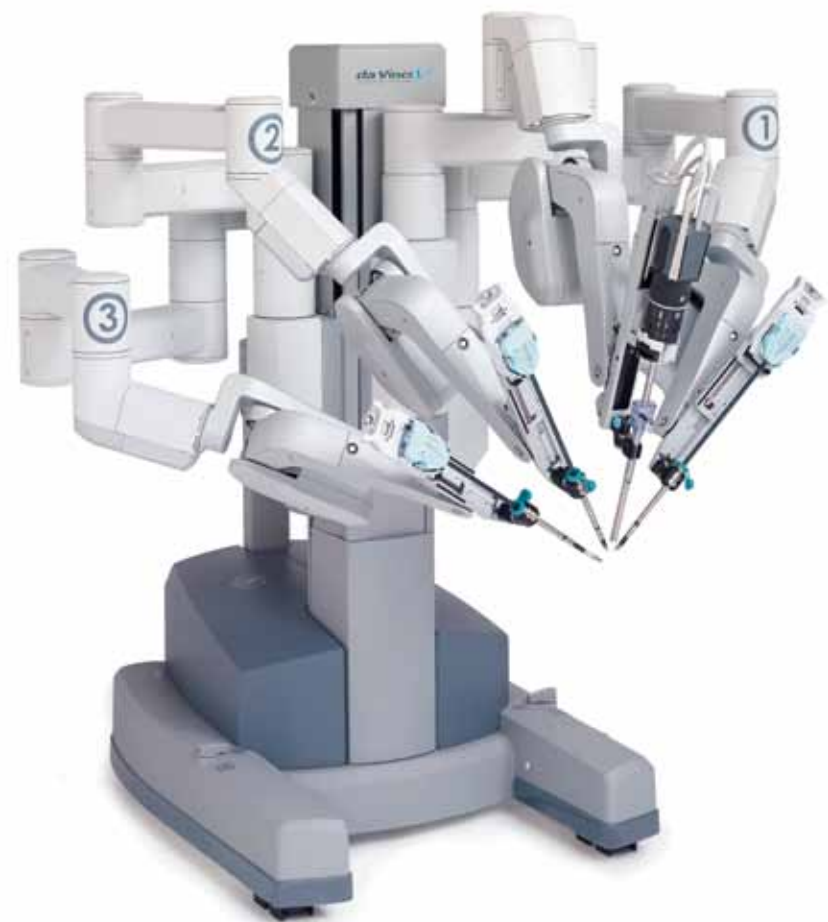


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The surgeon maneuvers the arms with precision using two foot pedals and two hand controllers while viewing operating images that are enhanced, refined and optimized by image synchronizers, high-intensity illuminators and camera control units.

Benefits experienced by surgeons using the da Vinci Surgical System include greater surgical precision, increased range of motion, improved dexterity, enhanced visualization and improved access. Patients experience shorter hospital stays, less pain, less risk of infection, less blood loss, fewer transfusions, less scarring, faster recovery and a quicker return to normal daily activities.

{A variety of da Vinci procedures are available at Erlanger Health System, Hamilton Medical Center, Memorial Health System and Parkridge Health System.}



da Vinci® Gynecology: For complex hysterectomies and other gynecologic procedures, robot-assisted surgery with the da Vinci Surgical System may be the most effective and least invasive treatment option. Through tiny 1-2 cm incisions, surgeons using the da Vinci System can operate with greater precision and control, minimizing the pain and

risk associated with large incisions while increasing the likelihood of a fast recovery and excellent clinical outcomes.

da Vinci® Urology: The da Vinci Surgical System is being used by an increasing number of surgeons worldwide for delicate

urologic surgery. This includes prostatectomy for prostate cancer, where the target site is not only tightly confined but also surrounded by nerves affecting urinary control and sexual function. Using the da Vinci System, surgeons are more able to spare delicate and critical surrounding nerves.

da Vinci® Colorectal: The da Vinci Surgical System allows surgeons to provide patients with the best of both open and laparoscopic approaches for colorectal procedures. The da Vinci® System enables surgeons to operate through tiny incisions with greater vision, precision and control than ever before.

da Vinci® Thyroidectomy: If your doctor recommends surgery to treat thyroid cancer, you may be a candidate for da Vinci robotic surgery, which enables your doctor to perform this delicate operation with breakthrough precision.

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Dr. Lee Jackson,
Urologist and Prostate Surgeon, Memorial Health Care System

“With robotic surgery, the hospitalization and recovery is much shorter. The applications and the instruments for da Vinci continue to improve. Now that da Vinci has been available for some time, the precision is better; the optics are better; and more control is in the hands of the surgeon at the console. Within urology, the standard is now robotic surgery which can and is now being used for the surgical management of renal cancers, muscle invasive bladder cancers and prostate cancer. The level of medical care in this city is world-class. Many of the doctors in this region could easily be faculty at Vanderbilt or Duke if they chose to do so. I think it speaks well of the quality and character of this city that so many first class physicians choose to live here.”



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The da Vinci® Surgical System provides your surgeon with superior vision, precision, dexterity and improved access to the affected area.

Transradial Approach Cardiac Catheterizations for Coronary Intervention

Cardiac catheterization is performed to diagnose and treat heart conditions. Patients with blockages may undergo angioplasty or stent implantation to alleviate them. Typically these procedures are performed using the vessels that run in the groin area; however, the new transradial approach utilizes the radial artery that is located in the wrist.

Transradial access for coronary catheterizations has become increasingly popular worldwide. Transradial access results in less bleeding. Patients who undergo transradial catheterization typically experience fewer complications and are free to move around soon after the procedure is completed. This procedure significantly increases the patient comfort, as well. *{Currently offered at the Chattanooga Heart Institute}*

Endobronchial Ultrasound (EBUS)

Endobronchial ultrasound (EBUS) is a new minimally invasive procedure used in the diagnosis of lung cancer, infections and other diseases causing enlarged lymph nodes in the chest. The EBUS procedure allows physicians to perform a transbronchial needle aspiration (TBNA) to obtain tissue or fluid samples from the lungs and surrounding lymph nodes without conventional surgery. The samples can be used for



"Because the TIF procedure requires no incision, this means no scarring for the patient, as well as less pain, less risk and a faster recovery than other surgical options. The TIF technology is good for both physicians and patients because it can offer a quick, effective solution."

Dr. Eston Wenger,
Board Certified through the American Board of Surgery,
Surgical Associates of Cleveland

diagnosing and staging lung cancer, detecting infections and identifying inflammatory diseases that affect the lungs.

For the EBUS procedure, a special endoscope fitted with an ultrasound processor and a fine-gauge aspiration needle is guided through the patient's trachea. No incisions are necessary.




The benefits of EBUS include real-time imaging of the surface of the airways, blood vessels, lungs and lymph nodes, which allows a physician to easily view difficult-to-reach areas and access more, and smaller, lymph nodes for biopsy. The accuracy and speed of the EBUS procedure allows pathologists to process and examine biopsy samples as they are obtained in the operating room, as well as request additional samples immediately if needed. *{Currently offered at Memorial Health Care System}*

TIF (Transoral Incisionless Fundoplication)

Chronic acid reflux or severe heartburn, also known as gastroesophageal reflux disease (GERD) is a condition in which the stomach contents (food or liquid) leak backwards from the stomach into the esophagus (the tube from the mouth to the stomach), causing irritation of the esophagus, heartburn and other symptoms. Often, over-the-counter antacids and prescription drugs are used to control pain (heartburn) associated with GERD.

One of the newest methods for treating GERD is a minimally invasive, incisionless procedure called TIF (transoral incisionless fundoplication). TIF is performed under general anesthesia and reconstructs a new valve from existing tissue, recreating the patient's own anatomy to resolve acid reflux problems. *{Currently offered at Sky-Ridge Medical Center}*

Advanced medical care is being led by new technology and the best medical professionals. The Chattanooga area is fortunate to have hospitals and medical centers that offer both. 

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