Sentara Healthcare
Medical Innovations 2000 - 2007

2000

- Sentara hospitals are using new protocols that are achieving dramatic results for stroke patients. Sentara ERs have shaved critical minutes off the process of treating stroke patients to make use of clot busting drugs, which can reverse paralysis, but must be administered within 3 hours of an attack.
- Sentara Norfolk General Hospital now offers TMR, (transmyocardial revascularization) and PTMR (percutaneous transluminal myocardial revascularization). Using a small laser, energy is delivered inside the heart wall, stimulating new blood vessel growth and improving blood flow to the heart muscle.
- Sentara begins offering a computer-aided detection (CAD) system for breast cancer screening which offers radiologists another tool for identifying breast cancers earlier, when they are more treatable.
- Image-guided surgery, which allows surgeons to conduct real-time navigation of the brain, spinal cord and nose, is first performed at Sentara Norfolk General Hospital.
- Uterine Fibroid Embolization, an alternative to surgery for patients who fail to respond to medical therapy, is first performed at Sentara.

2001

- Awake Brain Surgery, a new neurosurgical procedure, is now being performed at Sentara Norfolk General Hospital. The procedure allows the patient to remain awake during the procedure in order to assist the surgeon in completing a “brain mapping” process.
- Sentara is one of the few health systems in the country and the only health system in Hampton Roads to offer two methods for the liquid-based Pap smear.
- Sentara Norfolk General Hospital offers endoscopic brain surgery, a new breakthrough in brain surgery. It is a minimally invasive way to treat a variety of problems that occur in the brain, such as brain tumors, aneurysms; brain cysts and hydrocephalus (build up of fluid in the brain).

2002

- Sentara Norfolk General Hospital is the only hospital in southeastern Virginia to offer beating-heart bypass surgery, which allows patients to have bypass surgery without stopping their heart.
- Sentara Norfolk General Hospital performs the first adult congenital atrial septal defect (ASD) interventional repair.

- Sentara is the first in the region to perform kyphoplasty, a medical breakthrough in spinal surgery designed to repair vertebral compression fractures.
- Urologists at Sentara Norfolk General Hospital are the first in Virginia and the only urologists in southeastern Virginia to perform InterStim Therapy, a reversible surgical procedure that uses mild electrical stimulation of sacral nerves to control bladder function.
- Sentara and its physician partners begin offering stereotactic radio surgery, a state-of-the-art procedure for cancer patients that involves delivering a single, high dose of radiation directly to the tumor in the form of an arc.
- Neurosurgeons at Sentara Norfolk General Hospital implant the first dime-sized wafers into the brain that deliver chemotherapy directly to the tumor site.
- Sentara is the first in Hampton Roads and one of only a small number of health systems across the country to offer Intensity Modulated Radiation Therapy (IMRT) for cancer treatment.
- Surgeons at Sentara Norfolk General Hospital perform the region's first robotic-assisted laparoscopic radical prostatectomy. Using a three-armed surgical robot, Zeus®, coupled with multiple robotic systems, this minimally invasive technique used to treat prostate cancer, uses very tiny multiple incisions.
- Sentara Obici Hospital begins performing the DIEP procedure (deep inferior epigastric perforator) flap technique. The procedure, which is for breast reconstruction, makes use of abdominal skin and fat only. It spares abdominal muscles altogether, reducing the risk of abdominal weakening or hernia that can make it difficult to sit up for a lying position. The procedure is at limited locations in the U.S.
- Sentara introduces M2A Capsule endoscopy. Once the capsule is ingested physicians are able to see the entire small intestine, an area of the body that is difficult to examine and previously visible only through less accurate Imaging techniques or surgery**.**

2003

- Sentara Home Care performs the region's first cardiac connection program, a combination of home visits and interactive telehealth.
- Sentara Norfolk General Hospital and Sentara Virginia Beach General Hospital are the first in the region to perform the first insertion of a cardiac drug-eluting stent. It is the first combination drug device intended to help reduce re-blockage of a treated artery.
- Sentara Norfolk General Hospital is the first of six sites in the United States to begin an FDA trial using the ZEUS® robotically assisted laparoscopic radical prostatectomy procedure to treat prostate cancer.
- Sentara Norfolk General Hospital offers new intervention radiology procedures. The first intradiscal electro thermo (IDET) for treatment of disc disease is performed in a non-surgical environment.
- Sentara Norfolk General Hospital is the first in the region to perform 3-D mapping and Ablation, and remote endarterectomies, a minimally invasive procedure that removes plaque from a patient's blocked femoral artery.

- Sentara Hospitals are the first in the area to incorporate “smart pump” technology into all existing infusion pumps. With the new software, hospitals are able to pre-set customized dosage limits for more than 90 different drugs.
- Sentara Virginia Beach General Hospital begins offering photoselective vaporization of the prostate, a new minimally invasive option for treating an enlarged prostate.
- Sentara begins offering a new treatment for heartburn or reflux using a recently FDA-approved permanently implanted device to control the symptoms of gastroesophageal reflux disease (GERD) at Sentara Leigh Hospital. The findings are being published in The American Journal of Gastroenterology.
- Sentara Norfolk General Hospital performs the region’s first minimally invasive valve surgery.

2004

- Sentara Norfolk General Hospital is the first in Hampton Roads to use the new da Vinci Robotic Surgical System in prostatectomy operations. The technologically advanced surgical robotic system offers dramatically better outcomes for urology patients.
- Sentara Home Care Services is the first home care agency in Virginia to be certified in the use of the VitalStimä therapy system which stimulates the muscles of the swallowing mechanism into functioning.
- Sentara Norfolk General Hospital begins offering Atrial Septal Defect Repair (ASD), a new transcatheter technique in place of open-heart surgery. With this new procedure, ASD can now be successfully repaired in the heart catheterization laboratory instead of open-heart surgery. Recovery time for patients is reduced from 6 weeks to 2 to 3 days.

2005

- Virginia’s first artificial spine disc replacement surgery is successfully performed at Sentara Williamsburg Community Hospital.
- Sentara Norfolk General Hospital is the first in the region to use da Vinci® Surgical System, a revolutionary new advancement in cardiac surgery that uses a four-armed robot, to provide minimally invasive treatment to heart patients in need of heart surgery.
- Sentara Norfolk General Hospital is the first in the area to use the da Vinci Surgical System for removal of a cancerous bladder. Surgeons are able to use the robotic arms of the da Vinci system for removal of the cancerous bladder through a small opening in the abdomen.
- Sentara CarePlex Hospital begins using a new chemotherapy technique for abdominal cancers. Sentara is Virginia's first site using the FDA-approved ViaCirqÔ method of treatment for abdominal cancer patients
- Sentara Leigh Hospital becomes the region's first hospital to perform the PROLIFT pelvic floor repair, eliminating the need for hysterectomy for many women.
- Sentara Norfolk General Hospital performs the region's first implantation of the HeartMate II device as a bridge to heart transplantation. The HeartMate II is a high-

speed pump that drains blood from the left ventricular apex and ejects into the aortic root via an outflow cannula joined to the aorta with an end to side anastomosis.

- Surgeons at Sentara Norfolk General Hospital begin using minimally invasive heart mitral valve repair making the surgery and recovery much easier for patients. The cardiac surgery is performed without the use of a sternotomy (an incision into the chest). There is considerably less cutting of tissue and bone, which results in a smaller scar.
- An innovative new limb-saving procedure becomes available at Sentara CarePlex Hospital to reduce the likelihood that a patient with Peripheral Artery Disease will have to undergo amputation.
- Surgeons begin performing minimally invasive aortic valve replacements at Sentara Norfolk General Hospital. By incorporating minimally invasive surgical techniques, surgeons can now perform an aortic valve replacement through a two-inch incision. This dramatically smaller incision allows the surgeon access to the aortic valves while offering the patient less postoperative pain and scarring, decreased blood loss and a shorter hospital stay.
- Sentara Hospitals are now using laparoscopic ultrasound to identify cancers that may go undetected by other diagnostic methods. With the help of laparoscopic ultrasound, surgeons can evaluate liver, colon, rectal, and other gastrointestinal cancers and deliver treatments such as radio frequency ablation. Laparoscopic ultrasound is finding up to 30 percent more liver lesions than just CT alone.
- Sentara Norfolk General Hospital and Sentara CarePlex Hospital begin using the Lap-Band procedure, the newest and only adjustable, minimally invasive surgical weight loss procedure.

2006

- A new minimally invasive life-saving procedure for the treatment of thoracic aortic aneurysms (TAA) is available at Sentara Norfolk General Hospital. The GORE TAG Thoracic Endoprosthesis is the first and only endovascular device approved by the FDA. The procedure is less invasive than traditional TAA surgical repair.
- Sentara Home Care Services is among the first home care agencies nationwide to offer the ZOE Fluid Status Monitor in the homes of patients with congestive heart failure.
- Sentara Norfolk General Hospital Reference laboratories and Sentara Williamsburg Regional Medical Center are the first in Hampton Roads to offer the Sakura Xpress Continuous Rapid Tissue Processor, a new lab technology to speed biopsy results.
- Sentara Virginia Beach General Hospital begins offering 12-Lead EKG. Sentara has partnered with Virginia Beach EMS to transmit real-time EKGs from rescue units carrying MI patients to our EDs. Sentara purchased the receiving units and Virginia Beach EMS is supplying three 12-lead portable EKGs to be carried aboard "zone cars' that respond to all Advanced Life Support ambulance calls.
- Sentara Bayside Hospital is the first in the region to offer high-field open MRI. The new machine provides patients more room, is faster and more accurate than older machines.
- Surgeons at Sentara Heart Hospital perform the state's first robotic major thoracic procedures using the daVinci™ surgical robot. The three procedures-two robotic

lobectomies removing tumors from lung cancer patients and one surgery to remove a mass from the thymus gland- are innovative new procedures to minimize trauma to patients.

- Orthopedic surgeons at Sentara Leigh Hospital are involved in a clinical trial using the Zimmer® Gender Solutions™ Knee, a knee replacement specially designed to fit the anatomy of the female knee. The goal is to have a better fitting knee to reduce post-surgical pain. Jordan-Young Institute is currently the only group in the country performing a comparative study between the gender knee and the standard total knee.
- Sentara Norfolk General Hospital's Renal Transplant Program performs the most kidney transplant procedures in Virginia during 2006 according to the Organ Procurement and Transplant Network (OPTN). The team performed 110 procedures at Norfolk General and 4 at Children's Hospital of the King's Daughters for 114 procedures.

2007

- Sentara offers Hampton Roads only computerized stationary bike designed for people with spinal cord injuries. Sentara received the ERGYS® 2 Rehabilitation system through grant funding provided by the Commonwealth Neurotrauma Initiative to Woodrow Wilson Rehabilitation Center in Fisherville.
- Sentara Heart Hospital begins offering the region's fastest and most accurate cardiac CT scanner at the Advanced Imaging Center-Sentara Heart Hospital, the area's only dedicated heart imaging center. Sentara physicians have information to know almost instantly the cause of chest pain or shortness of breath.
- Sentara Williamsburg Regional Medical Center marks three years without a ventilator-assisted pneumonia (VAP), a pneumonia that develops in patients who have been on mechanical ventilation for 48 hours or more.
- Sentara.com offers four surgical Webcasts: minimally invasive procedures for improving circulation to the legs; robotic assisted prostatectomy to treat prostate cancer; minimally invasive adjustable LAP-BAND® Surgery; and a minimally invasive lobectomy on a lung cancer patient.
- Neurologists at Sentara Virginia Beach General Hospital participate in a multicenter clinical trial evaluating the safety and effectiveness of a non-invasive, infrared laser device for stroke patients. It can be administered up to 24 hours after the onset of stroke symptoms and is believed to work by stimulating metabolic reactions, preventing brain cells from dying.
- Sentara Labs have introduced the MetaSystems™ automated, interactive microscope imaging system. The state-of-the art system helps with the diagnosis and care of patients with genetic or inherited diseases and cancer. The advanced technology also offers fast turnarounds and enhanced accuracy.
- Surgeons and OR staff at Sentara Norfolk General Hospital pass the 500 mark in daVinci robotic surgery procedures. daVinci has been used for urology, heart and thoracic procedures.
- Orthopedic surgeons at Sentara Leigh Hospital participate in a Phase I clinical trial of neocartilage—a living tissue graft designed to repair cartilage defects, restore joint function and relieve pain in the knee. The hospital is one of four sites in the country participating in the clinical trial.

- Surgeons and interventional radiologists at Sentara Heart Hospital® perform the region's first radiofrequency ablation—a procedure that uses waves of heat energy to destroy cancerous tissue. The procedure is a promising alternative to the surgical removal of lung and esophageal tumors.
- Patient Tony Parker, 39, receives a kidney and pancreas transplant in the first procedure of its kind performed at Sentara Norfolk General.
- The area's first hospital-based 3T MRI, the Magnetom Trio 3T MRI, at Sentara Norfolk General offers physicians clearer images that may change their surgical approach, specifically in neurology, neurosurgery, breast imaging, orthopedics and urology.
- A team of surgeons from Sentara Norfolk General perform an innovative procedure called transnasal endoscopic skull base surgery (or neuro-endoscopic procedure) to remove pituitary and other tumors through the nose.
- Sentara Norfolk General Hospital becomes the region's first facility to implant a new artificial disc, the PRESTIGE ® Cervical Disc, to treat degenerative cervical disc disease. The stainless steel disc is intended to relieve neck pain and stiffness.
- Sentara Norfolk General Hospital is one of three sites in the country to participate in a Phase I clinical trial using hyperbaric oxygenation immediately prior to chemotherapy and radiation to treat head and neck cancers.
- Pulmonologist Dr. Cammie Fruci uses Endobronchial Ultrasound, or EBUS, at Sentara Norfolk General Hospital to diagnose lung tumors. This breakthrough technology offers unprecedented views of lung and lymph node tumors from inside the body, allowing precise placement of biopsy needles and accurate, early diagnoses.
- The Advanced Imaging Center-Sentara Heart Hospital ® adds unprecedented imaging capability to its heart program by using an MRI dedicated for the evaluation of cardiac tumors, valve problems and wall damage after a heart attack.
- Sentara physicians offer a more comfortable and convenient way to evaluate heartburn symptoms with the first catheter-free Bravo pH Monitoring System. A small pH capsule is attached to the interior wall of the esophagus to transmit information to an external pager-sized recorder. Patients can continue with their daily activities and avoid the discomfort and inconvenience of monitoring through a nasal catheter.
- A new technique called breast-specific gamma imaging assists doctors in evaluating areas of concern when a mammogram is inconclusive. By imaging metabolic activity of lesions in the breast, physicians have an additional tool for diagnosing or ruling out early stage breast cancer.
- The Peninsula's strongest open MRI becomes available to patients at Sentara Port Warwick. The MRI can assist patients weighing up to 550 pounds or with claustrophobia who may have dreaded having an MRI in the past