

# Orthopedics



SENTARA®

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Introduction Letter from  
Carole S. Guinane, RN, MBA, Vice President of Sentara Orthopedic Services and  
Jack L. Siegel, MD, Chairman, Sentara Orthopedics High Performance Team

We believe in continually improving the care our orthopedic patients receive. We strive to deliver the highest quality services possible, carefully coordinated across all aspects of care. Not only does this approach benefit our patients, it reduces costs and makes our system more efficient.

We know that data drives innovation, so we foster the spirit of transparency needed to make changes and ensure consistency throughout our system. To that end, we have created a shared system for storing, accessing and using the many care measurements we record and report.

Our focus is on evaluating and delivering evidence-based clinical protocols for providing care. Our guidelines are designed to deliver safe care, with mechanisms in place to validate best practices.

Physicians help lead our quality improvement initiatives, and their participation has been critical to the success of our orthopedic service line. We work with more than 250 orthopedic surgeons and 50 podiatrists across Virginia and northeastern North Carolina. Collectively surgeons performed over 20,580 inpatient and outpatient orthopedic surgeries throughout Sentara in 2014, an 8.2 percent increase over 2013. More than 4,530 of those were elective hip and knee joint replacements, a 6.5 percent increase over 2013.

We embrace the need to make our care more efficient, using our resources wisely and creating value for every patient. For example, we know that care does not stop when a patient leaves the hospital, and that increasing the amount of services delivered at home is critical.

Educating and connecting with patients before they ever enter the doors of our facilities helps to prepare our patients for a quicker recovery. Once they return home, the connection with our staff and home care services offers an ongoing relationship that can keep recovery on track.

An important milestone for the year was the development of the inaugural 2015 Sentara Systemwide Orthopedic Strategic Plan that spans all Sentara regions and includes 12 hospitals.

We also implemented the leadership structure needed to achieve our goals. Guidance came from Sentara Orthopedic High Performance Team (HPT) surgeons and other professionals representing all of our regions. The strategic plan establishes a clear vision and path for developing a robust orthopedics network. It follows one of our guiding principles: to instill innovation in the way we think and act.



A handwritten signature in black ink that reads "Carole S. Guinane".

Carole S. Guinane, RN, MBA  
Vice President  
Sentara Orthopedic Services



A handwritten signature in black ink that reads "Jack L. Siegel".

Jack L. Siegel, MD  
Chairman  
Sentara Orthopedics High  
Performance Team (HPT)

# Sentara Healthcare

## 12 Acute Care Hospitals

- 7 in Hampton Roads
- 1 in Northern Virginia
- 2 in the Blue Ridge Region
- 1 in Southern Virginia
- 1 in Northeastern North Carolina



**Sentara Williamsburg Regional Medical Center**  
Williamsburg, VA  
145 Beds



**Sentara CarePlex Hospital**  
Hampton, VA  
224 Beds

**Orthopaedic Hospital at Sentara CarePlex Hospital**  
Hampton, VA  
18 Beds (included in Sentara CarePlex Hospital license)



**Sentara Obici Hospital**  
Suffolk, VA  
176 Beds



**Sentara Northern Virginia Medical Center**  
Woodbridge, VA  
183 Beds



**Sentara Leigh Hospital**  
Norfolk, VA  
250 Beds



**Sentara Princess Anne Hospital**  
Virginia Beach, VA  
160 Beds



**Sentara Martha Jefferson Hospital**  
Charlottesville, VA  
176 Beds



**Sentara Norfolk General Hospital**  
Norfolk, VA  
525 Beds



**Sentara Virginia Beach General Hospital**  
Virginia Beach, VA  
276 Beds



# SENTARA HEALTHCARE AT A GLANCE

128-Year Not-for-Profit Mission



**27,000+ Members of the Team**

Four Medical Groups with over 900 Physicians and Advanced Practice Clinicians



**12 Acute Care Hospitals**



**Advanced Imaging and Diagnostic Centers**



**Nursing and Assisted-Living Centers**



**Outpatient Care Centers  
Physical Therapy Centers**

More than 30 Locations



**Home Care and Hospice**



**Optima Health Plan**

Serving 450,000 Members



**Sentara College of Health Sciences**



**Sentara Quality Care Network**

A Clinically Integrated Network



**Sentara RMH Medical Center**  
Harrisonburg, VA  
238 Beds



**Sentara Albemarle Medical Center**  
Elizabeth City, NC  
182 Beds



**Sentara Halifax Regional Hospital**  
South Boston, VA  
192 Beds





# Vision for Unifying Orthopedics

A vision for collaboration and consistent adoption of evidence-based best practices and innovation unifies orthopedics across all providers affiliated with Sentara. We deliver orthopedic services across the continuum of care and consistently achieve excellent outcomes marked by:



Some of our 2014-2015 orthopedic achievements include:

- The **Sentara Orthopedic High Performance Team (HPT)** launched, with 19 orthopedic surgeons and 31 leaders from all Sentara hospitals continuously improving the care we offer to our orthopedic patients and their families.
- The **Sentara 2014 CEO Award** recognized joint replacement centers at Sentara with the highest award for quality and innovation in Sentara.

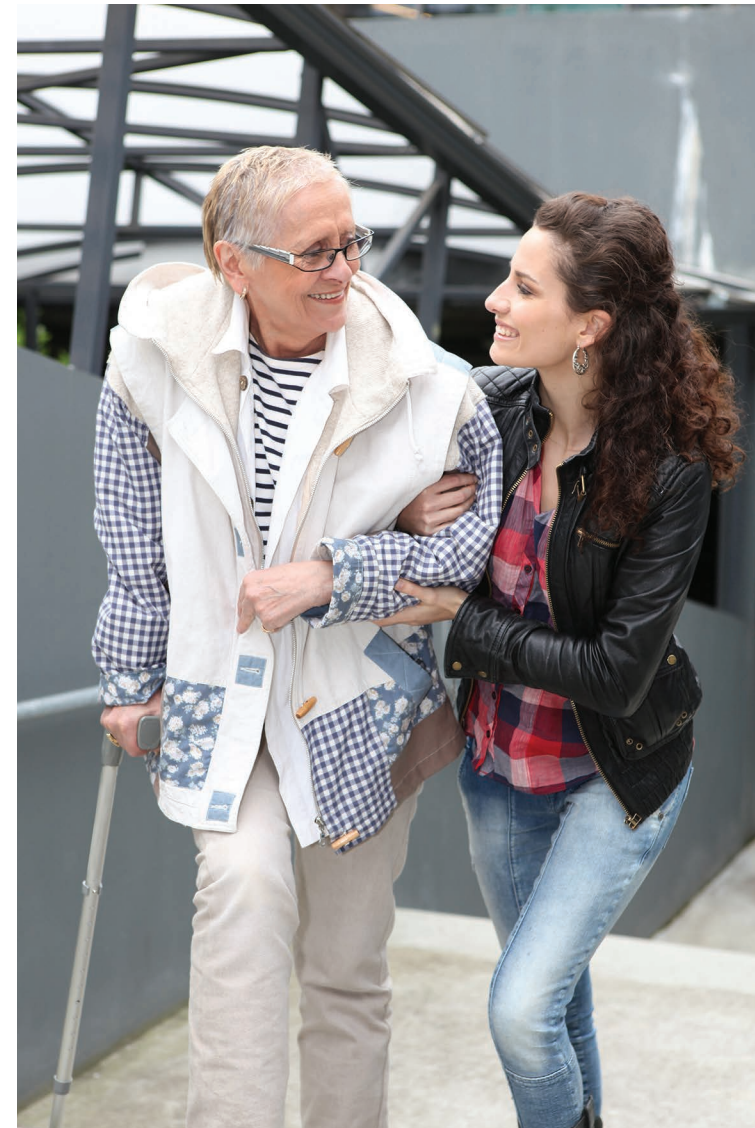


- **Orthopedic and Spine Task Force Teams**, with 28 surgeons and 10 service line leaders, provided a systematic approach focused on innovation, standardization, quality and capital acquisitions. The results have been dramatic, saving more than \$1 million in 2014 alone.
- **Orthopedic Service Line Teams** implemented our orthopedic vision, by monitoring and evaluating care at each Sentara hospital, then coming together as a group to share ideas and make improvements.
- **Orthopedics grew** across all regions of Sentara.
- Two new programs, **Sentara Back & Neck Center** and **Sentara Foot & Ankle Center**, opened in 2014. Four additional Sentara Back & Neck Centers started development in 2015, with one opening in October 2015 and three others opening in early 2016.
- The **Express Track Option** debuted at four Sentara OrthoJoint Center® locations, offering patients surgery in the morning and the chance to recover at home the next day.
- An additional **Sentara OrthoJoint Center®** began development in one of our rural markets.
- **Holistic care** became even more important to us, with a continued shift from focusing on each service a patient uses to enhancing and maintaining their overall health. This partnership not only improves care but also puts us on firm footing amid industry changes.

As we continue implementing our new strategic plan, it's important to celebrate and share our accomplishments. We commend our superb care teams for their commitment to excellence. And we thank our patients for trusting us to care for them.

“Joint replacement patients recognize the innovative techniques and excellent outcomes and seek their care in our local community.

— Dr. Daniel Cavazos, *orthopedic surgeon*  
Sentara Williamsburg Regional Medical Center



# Differentiated Orthopedic Care at Sentara

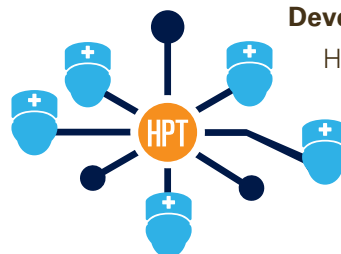
At Sentara, the things we do differently are our greatest strengths. Our level of patient care is distinctive because we challenge ourselves to be the best through a commitment to constant learning, research and innovation. We strive for excellence and promote teamwork and collaboration as we pursue and adopt the latest care techniques and technologies.



**Dedication to the best pathways for care.** Local physicians work with clinical and operational leaders at Sentara to identify and evaluate the best protocols. With an eye toward consistency across the system, they implement those improvements that are backed by data and meet or exceed national standards.



**A Focus on Quality Patient Outcomes.** Our mission depends on the care we deliver, so we measure outcomes in as many ways as possible — often beyond what is mandated. We share the resulting data with physicians and other providers across our system, not only to regularly review our performance but also to learn, grow and innovate.



## **Development of the Orthopedic High Performance Team.**

The HPT tracks goals and measurements across our system, to improve quality in a consistent and coordinated manner. We share information with all of the orthopedic providers in our communities, so they can compare their performance to their peers. A shared goal of helping patients heal faster with better protocols and discharging them home when ready has already led to fewer hospital readmissions.



**Creation of Task Force Teams.** Led by physicians, our spine and joint task forces create efficiency, assess patient care and outcomes, and evaluate new products. They also help us develop new technologies in a more consistent way, including the purchase of robotic-assisted tools such as NAVIO® for partial knee replacement.



## **Clinical Research**

Several private physicians are actively involved in orthopedic research and clinical trials that are helping advance patient care in our communities. Institutional Review Boards in each region review, approve and govern clinical trials at our facilities. This policy ensures patients are safe and informed when participating.



In 2014-2015, these distinctions included:



**U.S. News & World Report included two Sentara hospitals in the Best Hospitals, Orthopedic Care for 2014-2015.** Sentara Williamsburg Regional Medical Center and Sentara Leigh Hospital were both recognized.

**Sentara Leigh Hospital had the highest volume of knee replacement patients in Virginia.\*\***

The skills of our orthopedic teams are highly specialized in joint replacement, with best practice protocols.

\*\*VHI Inpatient State Data, CY2014, Total Knee Replacements

# Awards & Recognition

Thanks to the dedication of our staff and community physicians, Sentara has earned a national reputation for exceptional patient outcomes and innovative care. Sentara is continually recognized as one of the most progressive and integrated healthcare organizations in the nation. We have earned a multitude of national awards and accolades for our orthopedic care.

**Anthem Blue Cross Blue Shield awarded its Blue Distinction Centers, Knee and Hip Replacement, recognition to eight Sentara hospitals in 2015, up from four in 2014 and just three in 2012\*.**

- Sentara Leigh Hospital\*
- Sentara Martha Jefferson Hospital
- Sentara Obici Hospital
- Sentara CarePlex Hospital\*
- Sentara Williamsburg Regional Medical Center
- Sentara RMH Medical Center
- Sentara Northern Virginia Medical Center
- Sentara Virginia Beach General Hospital\*

All received this national designation that recognizes healthcare facilities with a proven track record of delivering better results, including fewer complications, fewer readmissions and reduced care costs.



**Sentara CEO Award.** The CEO award is the highest level of recognition a program can receive within Sentara. In 2014, this award was given to the joint replacement center teams for their proven track record of cost control and commitment to improved patient care. Through

the creation of a unique continuum of orthopedic care, an integrated system guides patients before, during and after joint replacement surgery. The team has been able to reduce costs and shorten length of patient stay, all while expanding the dedicated hip and knee program within Sentara.

**Cupron Clinical Trial of copper-infused patient linens.**



Sentara has received national recognition for the world's largest clinical trials of copper-infused textiles and hard surfaces with advanced antimicrobial materials and their effect on hospital-acquired infections and antibiotic use.



**Nursing Magnet Accreditation is held by five Sentara hospitals.**

- Sentara Martha Jefferson Hospital
- Sentara Norfolk General Hospital
- Sentara RMH Medical Center
- Sentara Williamsburg Regional Medical Center
- Sentara Leigh Hospital

All of these hospitals have earned this recognition for quality patient care, nursing excellence and innovations in professional nursing practice.

**Becker's Hospital Review recognized the Orthopaedic Hospital at Sentara CarePlex as one of the top 100 Great Orthopedic Programs in the nation for 2013 and 2014.**

# Surgical Procedure INNOVATIONS

Sentara strives to improve patient care by developing, adopting and implementing the most sophisticated techniques, technology and procedures.

## Efficiency, Quality Initiatives and Consistent Models of Care

**Sentara OrthoJoint Center®:** Ten Sentara specialty centers are dedicated entirely to hip and knee replacement.



**Orthopedic Patient Navigators:** Specially trained orthopedic nurse liaisons ensure a more seamless experience for orthopedic patients and their families.

**Express Track:** An optional program intended for healthy, younger people looking for a shorter hospital stay and recovery in the comfort of their own home.

## Anesthesia and Medications

A **long-lasting local anesthetic** that can dramatically decrease postoperative pain and recovery time after hip or knee replacement surgery.

**Focus on perioperative pain control and multi-modal analgesia** (treating pain before it starts) in lieu of narcotics.

**Regional anesthesia:** Sentara is committed to fostering the growth and availability of surgery requiring no general anesthesia. Regional anesthesia results in less grogginess and less nausea than general anesthesia. Our commitment to this advancement is unique within the region. Patients are able to be up and moving the same day as their surgery.

## Muscle-Sparing Procedures

**Minimally Invasive Anterior Approach Hip Replacement** (also known as **JIFFY HIP\***): A **minimally invasive** advancement in hip replacement surgery that may provide an easier recovery for patients.

*\*Registered trademark of Mizuho Orthopedic Systems, Inc.*

**Mini-Posterior approach** is another minimally invasive technique for hip replacement that can offer patients an easier recovery.

“After the surgery, I was anticipating some pain or discomfort. I was pleasantly surprised that there was none at all.

— Frank, both hip joints replaced with anterior approach surgery

**Tissue-sparing knee replacement approach:** **Minimally invasive** total knee arthroplasty technique that spares the **quadriceps** muscle and may lead to quicker patient recovery.

“I walked into the hospital with pain and left it at the hospital. I was amazed at the recovery.

— Ron, *tissue-sparing knee replacement patient*

There is extensive work in shoulder **arthroplasty** and surgeons are forging ahead with newer techniques and muscle-sparing procedures. An example is the **subscapularis** total shoulder replacement technique.

**Subscapularis total shoulder replacement technique:** A muscle-sparing approach to total shoulder replacement that preserves the subscapularis muscle, reduces the risk of tendon failure, provides fewer postoperative restrictions and potentially shortens rehabilitation time.

Other innovative shoulder replacements include the **stemless and mini stem procedures**.



## Robotic-Assisted Surgeries

### **NAVIO® robotic-assisted surgery for partial knee replacement:**

With NAVIO, surgeons use a hand-held robotic tool to aid in the precise alignment of partial knee implants without the need for a CT scan.

### **MAKO robotic-assisted surgery for partial knee and hip**

**replacement: MAKOplasty®** technology assists surgeons with both partial knee replacement and total hip joint replacement. **MAKOplasty®** allows for the preservation of natural bone tissue and uses a three-dimensional, computer-generated model created from a CT scan for implant positioning tailored to each patient.

“We can do the surgery through a much smaller incision with improved accuracy and precision.

— Dr. Patrick O’Connell, *orthopedic surgeon, Sentara Virginia Beach General Hospital*

## Surgical Procedure INNOVATIONS

### Specialized Surgical Procedures:

Surgeons at Sentara facilities have pioneered cutting-edge, minimally invasive surgeries for total joint replacement surgery, fracture care, and **arthroscopic** surgery. These surgeries involve smaller incisions, which preserve the patient’s natural tissue planes and blood supply. This offers our patients procedures with less postoperative pain and quicker healing.

- Bone-preserving implants for shoulder replacement surgery.
- Less invasive implants for fracture care.
- Innovative **arthroscopic** surgical procedures include tissue engineering for cartilage defects.
- Subchondroplasty, a joint-preserving solution for chronic knee pain and **osteoarthritis**.
- Less invasive **ACL** reconstruction surgery.

This offers our patients procedures with less postoperative pain and quicker healing.



# Sentara OrthoJoint Center®

The singular focus of the Sentara OrthoJoint Center® is the needs of orthopedic surgical patients undergoing hip or knee joint replacement surgeries. All locations of joint replacement centers concentrate their efforts on a dedicated team approach among nurses, anesthesiologists, surgeons, physical therapists and home care. This centered approach improves both patient care and outcomes and has helped us provide surgical options for patients who have been denied care elsewhere.

## Setting the Standard: Improving the Patient Experience

The success and expansion of Sentara Orthopedics is a direct result of our dedication to improving the patient experience. We've implemented countless measures to improve both overall care and treatment — from the initial consultation to postoperative care and beyond. We don't just follow the crowd; instead, we constantly set the standard for excellence in our regions and beyond. Right now, our patients are benefitting from game-changing advances that include:

- [The adoption and standardization of nationally proven best practices at the five original Sentara OrthoJoint Centers® \(2011-2014\)](#): showed earlier patient interaction and education, resulting in 54 percent fewer blood transfusions and a total cost savings of \$202,398<sup>1</sup>.
- [The Sentara 2014 CEO Award](#) recognized joint replacement centers at Sentara hospitals with the highest award for quality and innovations in Sentara. *(see page 4)*
- [Limiting the use of narcotics with the adoption of pain management protocols](#). Our focus is on [perioperative pain control](#) and [multi-modal analgesia](#). This includes the use of medicines that work on pain receptors everywhere in the body, resulting in less nausea, less confusion and a significant decrease in patient recovery time.

## REPRESENTED HOSPITALS

- ★ **Orthopaedic Hospital at Sentara CarePlex** | Hampton, VA
- ★ **Sentara Halifax Regional Hospital** | South Boston, VA
- ★ **Sentara Leigh Hospital** | Norfolk, VA
- ★ **Sentara Martha Jefferson Hospital** | Charlottesville, VA
- ★ **Sentara Northern Virginia Medical Center** | Woodbridge, VA
- ★ **Sentara Obici Hospital** | Suffolk, VA
- ★ **Sentara Princess Anne Hospital** | Virginia Beach, VA
- ★ **Sentara RMH Medical Center** | Harrisonburg, VA
- ★ **Sentara Virginia Beach General Hospital** | Virginia Beach, VA
- ★ **Sentara Williamsburg Regional Medical Center** | Williamsburg, VA



- **Comprehensive protocol implemented for infection prevention and MRSA screening:** Coupled with pre-surgery screenings for anemia and malnutrition, this protocol has significantly improved patient outcomes by lowering infection rates.
- **Specialized Orthopedic Nurse Certification (ONC) increased:** Sentara OrthoJoint Center® is committed to the advanced certifications of our nurses. In 2015, 37 additional nurses completed their training to become eligible for the ONC exam.
- **The establishment and adoption of DVT (deep vein thrombosis) prophylaxis protocol within each Sentara OrthoJoint Center® and systemwide:** This protocol has been associated with significant reductions in postoperative venous thrombosis (when a blood clot occurs within a blood vessel, leading to severe complications, including death).
- **Sentara has a systemwide initiative of reducing post-op VTEs (venous thromboembolism).** By 2015 year end, all 11 Sentara hospitals performed at or lower than the tri-state region benchmark median of 0.26 percent and Sentara Norfolk General Hospital performed at 0.49 percent.



PATIENT NAVIGATOR

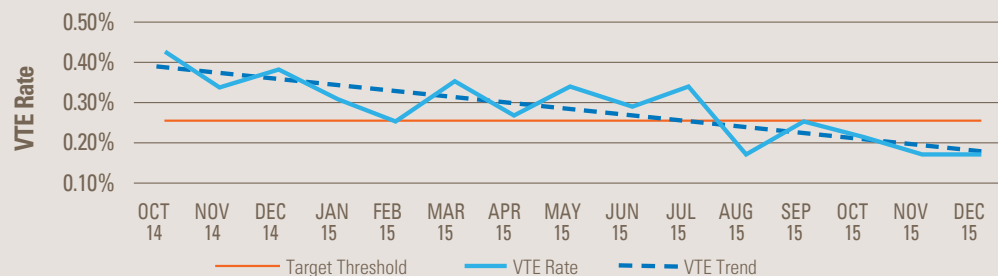
**A dedicated Orthopedic Patient Navigator:**  
The Patient Navigator helps foster open lines of communication between the patient, the patient's family and the care team before, during and after surgery.



**1-855-20RTHOJT**

**This dedicated phone line** assists people with joint pain. Over 1,000 people have called to talk directly to our Registered Nurse about their orthopedic health concerns and to get connected with an orthopedic specialist.

**VTE Rate 15-Month Trend<sup>1</sup>**



- **Nationally recognized Hypotension Protocol:** This physician-developed and nurse-initiated protocol is a streamlined method to deal with potentially dangerous low blood pressure. Adopted across all Sentara OrthoJoint Center® locations, in just one year, the protocol single-handedly reduced medical interventions due to low blood pressure by 34 percent at Sentara Leigh Hospital. This Hypotension Protocol was presented at the national conferences including the **33<sup>rd</sup> Annual Congress of National Association of Orthopedic Nurses** and the **American Association of Orthopaedic Surgeons, 2014.**

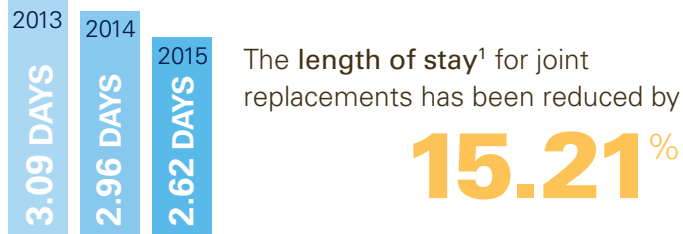
1 Sentara volume and data sourced from Sentara Decision Support

# Sentara OrthoJoint Center® EXPRESS TRACK OPTION



The Express Track option was introduced in 2015. It combines the high quality care of the Sentara OrthoJoint Center®, coupled with a shortened hospital stay. Patients leave the hospital the day after their joint replacement surgery and continue recovering in the comfort of their own home. There, they may be visited by our expert team of home care providers if needed.

Express Track is an optional program that requires the recommendation of the orthopedic surgeon and a commitment from the patient. To prepare for their Express Track participation, patients receive preoperative education and information, including a patient and family guidebook that lets them know what to expect. The guidebook also provides patients with both preoperative and postoperative exercises and expectations regarding recovery.



“Express Track gives people who are highly motivated and healthy an opportunity to get better faster.”

— Dr. Thomas Markham, *orthopedic surgeon*

Developed and released in early 2015 at two facilities, Sentara Leigh Hospital and Orthopaedic Hospital at Sentara CarePlex, Express Track was quickly introduced at two additional Sentara hospitals, Sentara Williamsburg Regional Medical Center and Sentara Obici Hospital. In 2016, Sentara Virginia Beach General Hospital and Sentara Princess Anne Hospital began offering this option.

Getting patients up and walking with physical therapy the same day of surgery is a key component to the success of the Express Track program. In its first year, 51 patients chose the Express Track option.



<sup>1</sup> Sentara volume and data sourced from Sentara Decision Support



# ORTHOPEDIC PATIENT NAVIGATORS at Each Joint Replacement Center

## Making a Difference in the Patient Experience

Sentara Orthopedic Patient Navigators are nurses with specialized training in orthopedics, helping them provide an extraordinary level of patient care in their role as liaisons between the patient, the physician and the hospital. The Patient Navigator assesses patient needs and provides personal, individualized care for joint replacement patients. Orthopedic Patient Navigators are available at all Sentara joint replacement centers.

Sentara Patient Navigators see patients multiple times each day while in the hospital and serve as a touchpoint for the patient and the patient's family. They help ensure that patients are properly prepared for surgery, including:

- Preparing patient for surgery through education at a preoperative education class;
- Understanding each patient's medical history and risk factors (making sure, for example; that a patient's diabetes is being properly managed) and;
- Coordinating aspects of a patient's care while in the hospital and after they leave.

**“We evaluate each patient to make sure they are at their best level of health. Many of our patients have joint replacement surgery in the morning and are ready to go home the next day.”**

— Dr. Michael Higgins, *Medical Director, Orthopaedic Hospital at Sentara CarePlex*





# Sentara Back & Neck Center

The Sentara Back & Neck Center was initially implemented at Sentara Obici Hospital, then expanded to Sentara Virginia Beach General Hospital in 2015 to provide seamless, coordinated back and neck care. Sentara RMH Medical Center has a similar specialty spine program that has been serving their community for several years. It is a specialized program that brings together an experienced team of expert surgeons, as well as nurses and therapists with specialty training in caring for back and neck patients. This approach results in improved communication for better patient care. The Sentara Back & Neck Center continues to expand with three new centers opening in 2016.

**Both orthopedic spine-trained surgeons and neurosurgeons practice at Sentara Back & Neck Centers.**



## REPRESENTED HOSPITALS

- ★ **Sentara Obici Hospital** | Suffolk, VA
- ★ **Sentara RMH Medical Center** | Harrisonburg, VA
- ★ **Sentara Virginia Beach General Hospital** | Virginia Beach, VA

## PROGRAMS IN DEVELOPMENT 2016

- ★ **Orthopaedic Hospital at Sentara CarePlex** | Hampton, VA
- ★ **Sentara Norfolk General Hospital** | Norfolk, VA
- ★ **Sentara Princess Anne Hospital** | Virginia Beach, VA



**Pilot leading to expansion:** The spine program at Sentara RMH Medical Center opened in Harrisonburg in 2013. In 2014 Sentara Obici Hospital piloted the first dedicated Sentara Back & Neck Center in the Hampton Roads region. Based upon the success of this program, new Sentara Back & Neck Centers opened at multiple Sentara locations: Sentara Virginia Beach General Hospital opened October 1, 2015; Sentara Norfolk General Hospital and the Orthopaedic Hospital at Sentara CarePlex opened in early 2016, and Sentara Princess Anne Hospital began the development process for launching in 2016.



**PATIENT NAVIGATOR**

#### Spine Patient Navigators

These are nurses experienced in spine care who provide an extraordinary level of patient care in their role as liaisons between the patient, the physician and the hospital. They provide education and support for the patient before, during and following surgery.

**Staff focus and special training:** The nursing staff and physical therapists have a unified focus on back and neck care, and many are specially credentialed in **orthopedics**. This focus and expertise results in higher patient satisfaction and better patient care and outcomes.

**Unique minimally invasive procedures:** The Sentara Back & Neck Center is one of the only facilities in the region that performs minimally invasive sacroiliac fusion surgery, a procedure that fuses the iliac bone (pelvis) to the spine (sacrum).

**Non-surgical medical management:** Non-surgical treatments such as physical therapy and interventional medicine (injections) have resulted in better outcomes for spine care.

**Preoperative education classes:** Classes develop patient expectations and increase patient ambulation (a patient's return to walking) rates after surgery.



**1-855-267-8465**

**Direct line** gives patients access to a Registered Nurse who helps find a local spine physician.

“Having a Patient Navigator shows that we have an honest commitment to go above and beyond to make sure patients are comfortable and taken care of on an individual basis.”

— Dr. Bryan Fox, *medical director*  
Sentara Back & Neck Center  
at Sentara Obici Hospital



## Sentara Foot & Ankle Center

In 2014, two dedicated Sentara Foot & Ankle Centers were established. Located in Sentara Williamsburg Regional Medical Center and Sentara Port Warwick, these centers provide both inpatient and outpatient foot and ankle services, including immediate and early weight-bearing procedures. The Sentara Foot & Ankle Centers are dedicated exclusively to foot and ankle health, including education, diagnosis, therapy and surgery.

Throughout Sentara facilities, orthopedic surgeons **fellowship-trained** in foot and ankle care and podiatrists provide foot and ankle surgical care on an inpatient and outpatient basis.



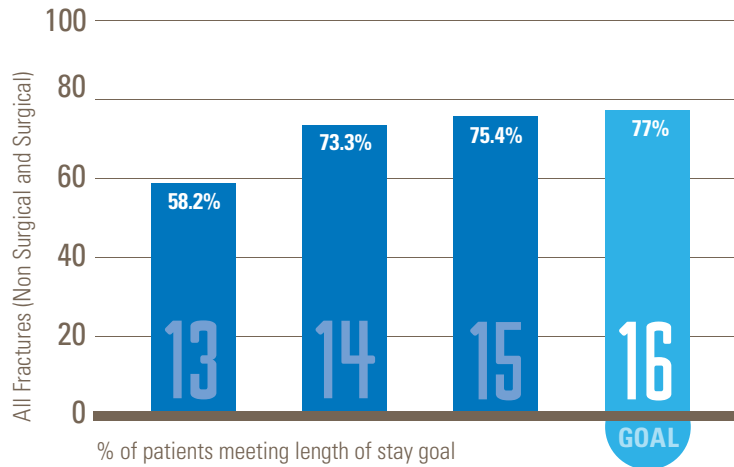
**1-855-704-FOOT**

Patients looking for foot care can call our Registered Nurse-answered call line.



Patients undergoing inpatient surgery at a Sentara Foot & Ankle Center have access to one of our Orthopedic Patient Navigators.

## Length of Stay<sup>1</sup> numbers



The graph shows that implementing Sentara Fracture Care improved our ability to treat fracture patients within the expected length of stay.

<sup>1</sup> Sentara volume and data sourced from Sentara Decision Support

## Sentara Fracture Care

Sentara Fracture Care at Sentara Leigh Hospital was the first and only program of its kind in the region when it opened in February 2014. It provides high quality, **subspecialty** care from a **fellowship**-trained team of orthopedic surgeons. The center places an emphasis on managing musculoskeletal injuries in the Emergency Department. Since the program was started in 2013, there has been a 10 percent improvement in getting our fracture patients to the operating room in less than 24 hours.

If surgery is required, Sentara Fracture Care provides completely integrated care that emphasizes the patient and family perspective, from the Emergency Department through discharge. Sentara Fracture Care developed specific treatment protocols for fractures, ensuring patients receive prompt and effective care. As a result, Sentara Fracture Care at Sentara Leigh Hospital has demonstrated shortened hospital stays and made for a better overall hospital experience for patients and their families. One of those protocols was a **commitment to getting hip fracture patients operated on within 24 hours**. This significantly lowers mortality rates and blood clots (**VTE**), and most patients are up the day of surgery.

Sentara Princess Anne Hospital opened a Sentara Fracture Care program in late 2015.

# Sentara Shoulder Care

Shoulder replacements and reverse total shoulder procedures are growing at a fairly rapid pace. Total shoulder outcomes continue to improve and evolve as technology advances. Innovative shoulder care is offered across Sentara facilities. **Subspecialty** trained orthopedic surgeons offer personalized patient care with a commitment to starting with the most minimally invasive interventions possible.

If surgery is necessary, the level of care available at Sentara is some of the best in the region, with many key differentiators resulting in better patient care:

Sentara Leigh Hospital was among the first facilities to offer the **subscapularis total shoulder replacement in Virginia**. This innovative, muscle-sparing approach for total shoulder replacement preserves the subscapularis, reduces the risk of tendon failure, provides fewer postoperative restrictions and potentially shortens rehabilitation time.

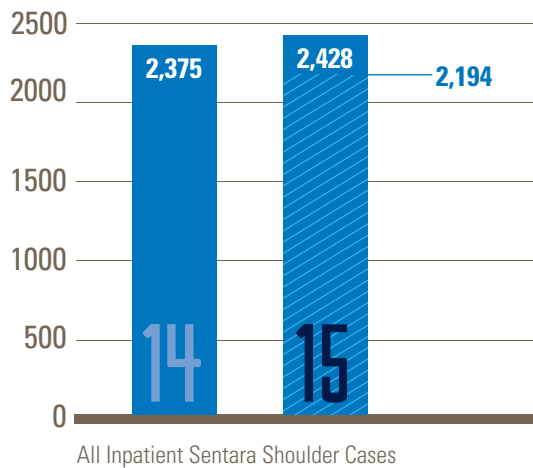
**Northern Virginia** and the **Blue Ridge** introduced the stemless and mini stem shoulder replacement.

The use of **minimally invasive and arthroscopic reconstruction of glenoid bone defects** is a muscle-sparing approach that leaves the subscapularis largely intact.

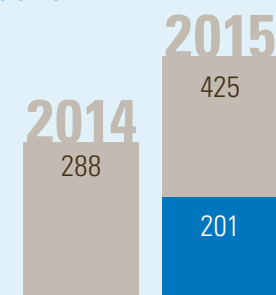
Sentara grew an impressive 47.6% increase in shoulder replacements from 2014 (288 cases) to 2015 (425 cases).<sup>1</sup> Sentara Leigh Hospital and Sentara Princess Anne Hospital represent 47.3% (201) of this volume.

## Shoulder numbers

All Shoulder Care volumes rose 2.2% in 2015. The Hampton Roads market represented 90% of that volume.<sup>1</sup>



<sup>1</sup> Sentara volume and data sourced from Sentara Decision Support





“ Before the surgery, I couldn’t pick anything up. I couldn’t hold a cup ... now my range of motion is back completely.

— Cindy, arthroscopic rotator cuff surgery patient

Orthopedic surgeons practicing at Sentara are among only a handful trained in the use of the **intramedullary small incision** technique for clavicle fracture. This technique requires less stripping of the **periosteum**, resulting in less pain and quicker recovery times.

# Two Sentara Hospitals are Designated **TRAUMA CENTERS**

**Sentara Norfolk General Hospital is designated a Level I Trauma Center, the highest level of trauma care.**

**Sentara Virginia Beach General Hospital is designated a Level III Trauma Center.**

In Virginia, the process of trauma designation is entirely voluntary. It is meant to identify those hospitals that make a commitment to providing a higher level of care for injured patients and who welcome public acknowledgment of that capability. The Virginia standards are reviewed and updated based on changes in the national standards, as well as the evolving needs of the trauma system in Virginia.



**Sentara Norfolk General Hospital**

Sentara Norfolk General Hospital is one of only five Level I facilities in Virginia and the only Sentara facility that is designated as a Level I Trauma Center.



**Sentara Virginia Beach General Hospital**

Sentara Virginia Beach General Hospital is one of five Level III Trauma Centers in Virginia.



## **Highlights of our emergency care include:**

- Trauma patients in Hampton Roads and northeastern North Carolina may have their orthopedic care provided at either trauma center, with trauma surgeons from Eastern Virginia Medical School (medical residents), Sentara Medical Group and private practice physicians.
- As a dedicated Level I Trauma Center, Sentara Norfolk General Hospital does not perform elective orthopedic surgeries — the focus of orthopedics is solely on trauma.

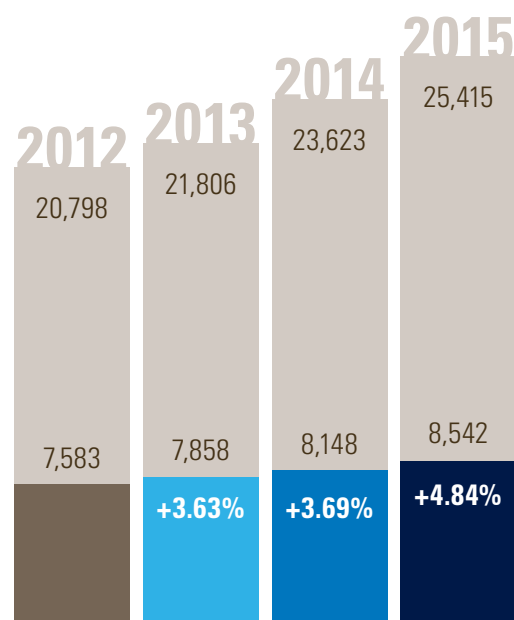
# Sentara Therapy Centers

## Direct Access to Physical Therapy Services

Sentara strives to help patients achieve their personal goals for rehabilitation. Patients recovering from surgery, injury or illness can count on over 30 conveniently located Sentara Therapy Centers to provide high quality therapy care, including spine therapy, lymphedema (therapy to reduce fluid retention and tissue swelling), sports medicine, manual therapy, aquatics, comprehensive rehabilitation programs with physical, speech and occupational therapies and other **subspecialty** clinical disciplines.

Located throughout Virginia and northeastern North Carolina, Sentara Therapy Centers partner with YMCAs to offer services inside of these facilities to improve the health of our local communities.

The Virginia law now allows direct access, where patients can begin therapy services without a physician referral. This new access is empowering people to connect with a physical therapist for guidance in restoring and maintaining a healthy body.



### Sentara Therapy Visit Volumes

(compared to total number of ortho visits)

Orthopedic therapy visits continue to grow, representing 33.61% of all therapy visits in 2015.

## Over 30 Convenient Neighborhood Centers

To find a location near you, visit [sentara.com/therapy](http://sentara.com/therapy)

VIRGINIA

NORTH CAROLINA



**1-855-852-9066**

A dedicated phone number allows patients to easily schedule therapy sessions at any of the Sentara Therapy Center locations.

# Sentara Sports Medicine



Whether it is through early adoption of surgical techniques, a commitment to minimally invasive surgical procedures or providing a point of contact for local athletic trainers, Sentara is proud of its reputation as a regional presence in orthopedics and sports medicine.

## UNIQUE PROCEDURES

- **The first DeNovo® NT (Natural Tissue) graft surgery for articular cartilage repair in the world was performed at Sentara Leigh Hospital.** This cutting-edge procedure to spur regeneration of cartilage was written about in the *Journal of Knee Surgery*.
- **ACL autograft reconstructions, using just one hamstring tendon instead of two.** This is an “all inside” technique that does not go through the femur or tibia (bones in the leg), resulting in less pain and quicker healing times at Sentara Martha Jefferson Hospital.

“It’s really a privilege to be a doctor, and it’s a responsibility to be a care practitioner — it’s that balance between developing novel techniques and doing the right thing for the patient.

— Dr. Kevin Bonner, *orthopedic sports medicine and shoulder surgeon at Sentara Leigh Hospital*



“Trainers really appreciate the ability to reach us 24 hours a day.

— Dr. Thomas Weber, *sports medicine and non-operative orthopedics physician at Sentara RMH Medical Center*

## COMMUNITY PROGRAMS

Orthopedic surgeons who practice at Sentara facilities also share their time and talents throughout the regions, serving as team physicians for local schools, colleges and sports teams.

## Admirals Hockey      Tides Baseball

Bridgewater College   Harrisonburg City High School   James Madison University  
 Hampton Public Schools   Virginia Wesleyan College   Page County High Schools  
 Hampton University   Rockingham County Public Schools   Elizabeth City College  
 Newport News Shipbuilding Apprentice School   Augusta County High Schools  
 Pasquotank Public Schools   Eastern Mennonite University   Norfolk Public Schools  
 Old Dominion University   ■ Professional   ■ College   ■ High School

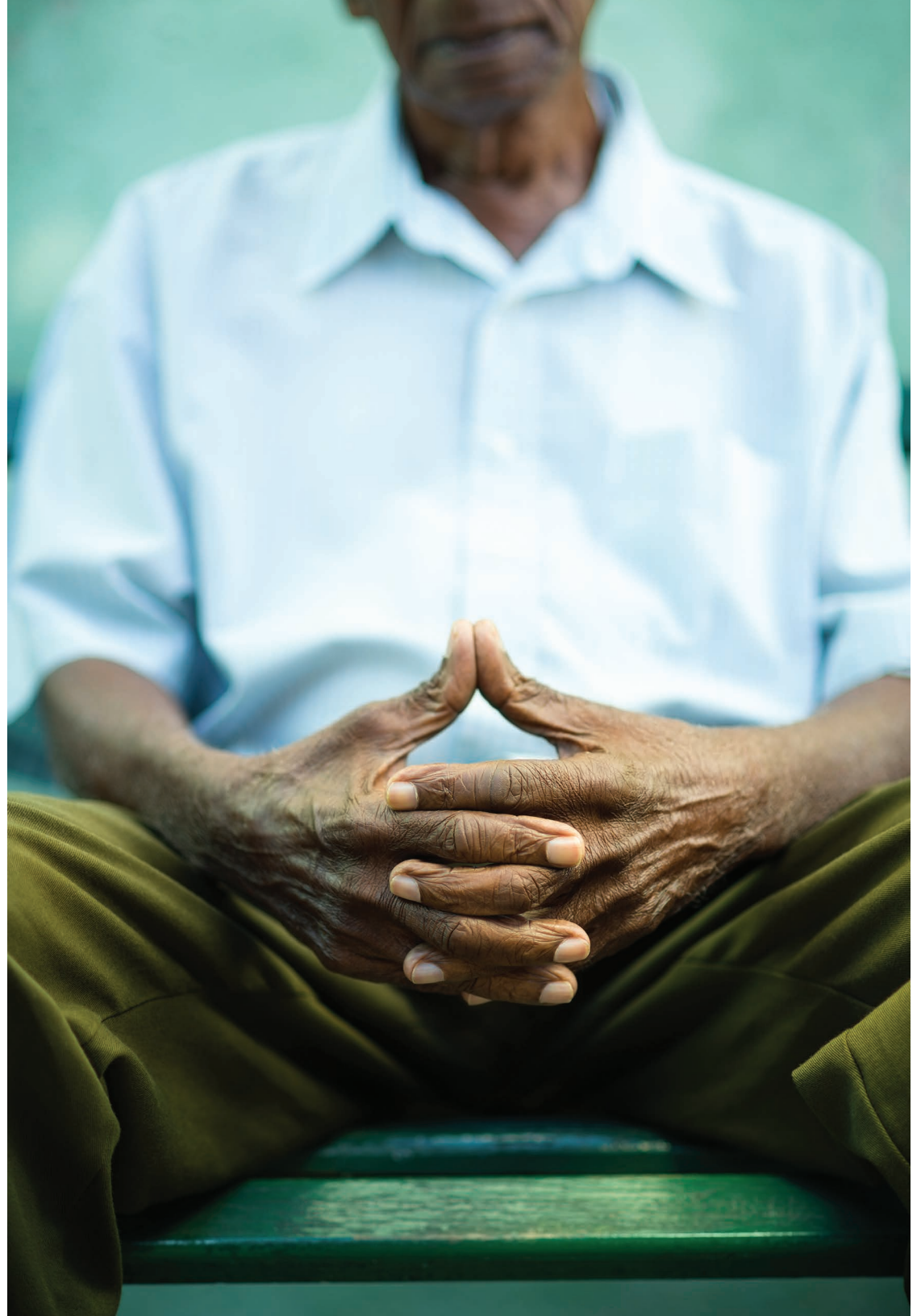
- **The athletic trainers throughout the regions provide a link between the athletic community and surgeons.** Sentara is a leading presence within the Blue Ridge, Hampton Roads and northeastern North Carolina communities, connecting orthopedic physicians and surgeons, orthopedic physical therapists and local athletic trainers.
- **The Concussion Clinic provides rapid evaluation** to monitor any concerning symptoms associated with concussions. Sentara doctors perform cognitive testing and help prescribe post-concussion care, including vestibular (balance) rehabilitation.
- **Sentara-sponsored Annual Sports Medicine two-day conference** is designed for physical therapists and athletic trainers. As Sentara is committed to specialized care and continuing education, this conference will be expanded to other regions.



- **Sentara Colonial Half Marathon and 5K with William & Mary.** More than 1,200 runners participated on this course through the streets and neighborhoods of historic Williamsburg. This annual race celebrated its 37th annual running in the late winter of 2016. All proceeds from this event benefit the College of William & Mary track and field and cross-country programs.

## Opening of the new Sentara RMH Orthopedic Center on the campus of Sentara RMH Medical Center

- 30,000-square-foot center dedicated to spine care, pain management and sports medicine.
- **Musculoskeletal (MSK) radiologists** on-site.
- A fully staffed physical therapy department that allows for collaboration and a seamless patient experience, from diagnosis through recovery.
- Specialized physicians and surgeons.



## Hand & Arm Care

Specialized hand orthopedic surgeons offer surgical and non-surgical care for hands and arms throughout Sentara regions.

Plans are underway to launch a hand care program in 2016 at Sentara Leigh Hospital. The goal is to offer seamless care for upper extremities, including diagnostics and surgery. Dedicated orthopedic traumatologists (surgeons that specialize in serious wounds and injuries) on staff will provide unparalleled specialty care within the region. This will include 24/7 trauma hand coverage.



# Orthopedic and Podiatry Groups Practicing at Sentara Hospitals/Facilities

## Albemarle Region North Carolina

- Coastal Albemarle Orthopedics
- Sentara Orthopedic & Sports Medicine Specialists, Division of Albemarle Physician Services

## Blue Ridge Region Virginia

### Charlottesville

- Albemarle Orthopaedics
- Albemarle-Charlottesville Podiatry Associates Ltd.
- Blue Ridge Foot & Ankle Clinic
- Central Virginia Foot and Ankle
- Charlottesville Hand Surgery
- Charlottesville Orthopaedic Center
- Commonwealth Orthopedic Specialist
- Michael Goldman, DPM
- Sentara Martha Jefferson Orthopedics
- The Podiatry Group
- Thomas L. Schildwachter, MD
- Virginia Foot & Ankle Surgical Associates

## Harrisonburg

- Harrisonburg Foot and Ankle Clinic
- Hess Orthopedics & Sports Medicine
- Sentara RMH Orthopedics and Sports Medicine
- Valley Plastic Surgery

## Halifax Region Virginia

- Sentara Southern Virginia Orthopedics
- The Foot and Ankle Clinic

## Hampton Roads Region Virginia

### Southside

- Atlantic Foot & Ankle Center
- Atlantic Orthopaedic Specialists
- Glasson Sports Medicine
- Jordan-Young Institute
- Oceana Sports Medicine & Orthopaedic Center
- Persons Orthopaedics
- Sports Medicine and Orthopaedic Center
- Sentara Hand Surgery Specialists
- Sentara Orthopaedic Trauma Specialists
- Sentara Podiatry Specialists
- Virginia Institute for Sports Medicine

## Peninsula

- Affiliated Podiatrists
- Ambulatory Foot & Ankle Center
- Hampton Roads Orthopaedics and Sports Medicine
- Tidewater Foot and Ankle
- Tidewater Orthopaedics
- Tidewater Physicians Multispecialty Group

## Northern Virginia Region Virginia

- Bull Run Clinic
- Dynamic Foot & Ankle Center
- Family Orthopedics & Sports Medicine
- Ghassem Nejad, MD
- Medstar Georgetown Orthopedic Institute
- Nova Orthopedics & Spine Care
- Potomac Podiatry Group
- Washington Orthopedic & Spine Institute

# Special Thanks

## Physician Leaders on the Sentara Healthcare Orthopedic High Performance Team

Daniel Cavazos, MD	Sentara Williamsburg Regional Medical Center
Frank Cuce, MD	Sentara RMH Medical Center
Gregory Degnan, MD	Sentara Martha Jefferson Hospital
AJ Disatsio, MD	Sentara Norfolk General Hospital
Jim Dowd, MD	Sentara Leigh Hospital
Jacqueline Fogarty, MD	Sentara Halifax Regional Hospital
Bryan Fox, MD	Sentara Obici Hospital
Michael Higgins, MD	Sentara CarePlex Hospital
Michael Holtz, DPM	Sentara Medical Group
Jonathan Mason, MD	Orthopaedic Hospital at Sentara CarePlex
Jared Miller, MD	Sentara Albemarle Medical Center
Blake Moore, MD	Sentara Princess Anne Hospital
Patrick O'Connell, MD	Sentara Virginia Beach General Hospital
Raymond Payne, MD	Sentara Princess Anne Hospital
Tina Rodrigue, MD	Sentara Norfolk General Hospital
Jack Siegel, MD, Chairman	Sentara Leigh Hospital
Megan Swanson, MD	Sentara Martha Jefferson Hospital
Wylie Zhu, MD	Sentara Norfolk General Hospital



## Special recognition to:

Chief Operating Officer, Michael V. Gentry  
Senior Vice President, Mary Blunt  
Corporate Vice President, Peninsula, Terrie Edwards  
Vice President, Sentara Orthopedic Services, Carole Guinane  
Director, Sentara Orthopedic Services, Michele Carroll

## Sentara Orthopedic Service Line Support Professionals

Julie Billingsley	Sentara Northern Virginia Medical Center
Brian Boland	Clinical Effectiveness and Regulatory
Arina Bolt	Sentara Albemarle Medical Center
Nell Booker	Sentara Lifecare
Dianne Boone	Sentara Obici Hospital
Jacqueline Butler	Infection Prevention
Judy Cole	Supply Chain
Amanda Colley	Sentara Virginia Beach General Hospital
Robin Crane	Marketing
Lori Crowder	Orthopaedic Hospital at Sentara CarePlex
Elizabeth Davis	Sentara Williamsburg Regional Medical Center
Abby Denby	Sentara Martha Jefferson Hospital
Adam Drumm	Sentara RMH Medical Center
Meg Fraim	Strategic Planning
Victoria Gray	Administrative Support
Kathleen Hardesty	Acute and Post-Acute Rehabilitation
Joni Henderson	Sentara Halifax Regional Hospital
Angie Honeycutt	Sentara Martha Jefferson Hospital
Michelle Jenkins	Sentara Medical Group
Laura Kelsey	Neurosciences
Samantha Kern	Sentara Princess Anne Hospital
Julie Lineberger	Performance Improvement
Jamie Marsh	Sports Medicine and Outpatient Rehab
Valeria Mitchell	Sentara Norfolk General Hospital
Christine Hall-Reichert	IT Support

Maureen Ryu  
Andrew Sharp  
Jennifer Smiley  
Joyce Stafford  
Chris Tagliente  
Deborah Wellington  
Alan Wilson

Sentara Enterprises  
Decision Support  
Sentara Martha Jefferson Hospital  
Finance  
Pharmacy  
Orthopaedic Hospital at Sentara CarePlex  
Sports Medicine and Outpatient Rehab

### **Orthopedic and Spine Patient Navigators**

Shannon Brown, RN	Sentara Halifax Regional Hospital
Anna Donahoe-Mick, RN	Sentara Leigh Hospital
Gina Lambert, RN	Sentara RMH Medical Center
Grace Miller, RN	Sentara Princess Anne Hospital
Shannon Miller, RN	Sentara Norfolk General Hospital
Ann Phillips, RN	Sentara Leigh Hospital
Cathy Robins, RN	Orthopaedic Hospital at Sentara CarePlex
Tracey Stallard, RN	Sentara Obici Hospital
Connie Summy, RN	Sentara Martha Jefferson Hospital
Rita Wade, RN	Sentara Williamsburg Regional Medical Center
Ann Kay Walters, RN	Sentara Virginia Beach General Hospital
Ada Vega-Diamantis, RN	Sentara Northern Virginia Medical Center



# GLOSSARY OF TERMS

We have provided this glossary for those readers who may not be familiar with some of the medical terms used in this annual report.

**ACL (anterior cruciate ligament):** The ligament in the knee that joins the upper leg bone and the lower leg bone

**Anterior:** Refers to the front

**Anterior approach hip replacement (also see Jiffy Hip\*):** Minimally invasive hip replacement surgery using a frontal (anterior) approach

**Arthroplasty:** A surgical procedure that restores joint function

**Arthroscopic (surgery):** A minimally invasive surgical procedure used to diagnose and treat joint problems

**Cupron antimicrobial technology:** Copper-infused patient linens, thought to reduce infections and the need for antibiotics

**DVT (deep vein thrombosis):** A clot that lodges in a blood vessel

**Embolism:** Blood clot that becomes lodged in a blood vessel and blocks it

**Fellowship:** Advanced medical training

**Glenoid:** The part of the shoulder where the shoulder blade (scapula) connects to the upper arm bone (humerus)

**Holistic care:** An approach to wellness that accounts for the physical, emotional and psychological needs of a patient

**Hypotension:** Low blood pressure

**Incision:** A cut made in order to perform surgery

**Intramedullary:** Referring to the inside of a bone

**Jiffy Hip\* (also see anterior approach hip replacement):** Minimally invasive hip replacement surgery using a frontal (anterior) approach.

**MAKOplasty®:** Robot-assisted technology for partial knee and total hip replacement surgeries

**Minimally invasive:** Refers to a surgical procedure that only requires a small incision

**MRSA (methicillin-resistant staphylococcus aureus):** A strain of antibiotic-resistant bacteria that is difficult to treat and can affect many parts of the body

**Multi-modal analgesia:** Incorporating different pain control techniques to more effectively manage pain, with fewer side effects

**Musculoskeletal (MSK) radiologist:** A doctor who specializes in the imaging and diagnosis of problems relating to muscles, bones and joints

**NAVIO®:** Robot-assisted tool for partial knee replacement

**Orthopedics:** The branch of medicine dealing with the skeletal system

**Osteoarthritis:** Joint stiffness and joint pain caused by loss of cartilage over time

**Patient Navigator:** Specially trained orthopedic nurse that provides guidance and education for orthopedic patients and their families

**PE:** Pulmonary embolism, when a blood clot breaks loose and travels to the lungs

**Perioperative pain control:** Pain management before, during and after surgery

**Periosteum:** Specialized connective tissue that covers all bones

**Posterior:** Refers to the rear

**Prophylaxis:** A preventive treatment

**Quadriceps:** The four muscles that cover the front of the thigh

**Regional anesthesia:** A type of anesthesia administered to only part of the body

**RN:** Registered nurse

**Subchondroplasty:** A joint-preserving surgical procedure for chronic knee pain

**Subscapularis:** The triangular muscle that extends from the shoulder to the upper arm

**Subspecialty:** A highly specific area of expertise

**VTE:** Venous thromboembolism is the formation of blood clots in the vein including DVT and PE



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[sentara.com/ortho](http://sentara.com/ortho)