



THE POWER OF
ONE

HSS

The image features a dark blue background with several thin, light blue concentric circles centered around the middle. The word "ONE" is written in a large, bold, white, sans-serif font across the center of the image. The "O" is a simple circle, the "N" is a vertical bar with a diagonal stroke, and the "E" is a vertical bar with three horizontal strokes. The text is centered horizontally and vertically.

ONE

A graphic consisting of several concentric, slightly irregular purple circles of varying line thicknesses, centered around the word "VISION".

VISION

A graphic consisting of several concentric, slightly irregular green circles of varying line thicknesses, centered around the word "WORLD".

WORLD

A graphic consisting of several concentric, slightly irregular dark blue circles of varying line thicknesses, centered around the word "HSS".

HSS



THE POWER OF
ONE

BETTER

KNOWLEDGE

HSS is transforming the field of musculoskeletal health, reaching every corner of the world. We are advancing science, improving the quality of care, and delivering better value in more than 120 countries. As the internationally recognized leader in musculoskeletal health, HSS has a responsibility to meet the growing demand for value-based care, so we are transcending boundaries to project our high-value care across the globe.

Our powerful, far-reaching impact on the field is evident in the hundreds of thousands of patients around the world who are living active, fulfilling lives thanks to our care and innovations; the thousands of healthcare professionals who participate in HSS eAcademy®, our digital platform for professional

education programs; and the hundreds of international physicians who travel to HSS each year to learn best practices from our renowned physicians. HSS is uniting the world of musculoskeletal health, providing patients, physicians and institutions everywhere with the most innovative and precise treatments and diagnostic technologies.

HSS is accelerating on a unique path that ensures our future growth and continued success—outpacing a field that is itself rapidly advancing. For the eighth consecutive year, HSS earned #1 in the U.S. for Orthopedics by *U.S. News & World Report* “Best Hospitals” (2017-2018 rankings). We were also #3 in Rheumatology. Still, we are never content to rest on our laurels.

Striving to be **BETTER**—and redefining what that means every day, in this rapidly changing healthcare environment—is the key to our growth. It is the reason we are expanding our services in the tristate area, increasing patients’ access to care; and it is the reason we are constantly improving the quality of our care—despite the fact that we already have among the lowest infection, complication and readmission rates in the nation. In 2017, we launched the Center for the Advancement of Value in Musculoskeletal Care to promote the development of innovative ways to deliver value-based care.

Through our uniquely collaborative research, we are producing **KNOWLEDGE**—and sharing it with the world. We are introducing new and innovative care delivery platforms—



SCALE

including virtual ones—and advances in the life sciences through our Global Innovation Institute.

As the leader in our field, we must export our intellectual property to benefit patients everywhere. To that end, our physicians participate in symposia and case sharing with their counterparts around the world, improving patient care across multiple continents. That helps us to achieve **SCALE** in musculoskeletal health.

HSS is playing an even greater role in people's lives, since we aim to help prevent the very conditions we are treating. We will continue to provide high-value care for patients—and change the face of healthcare, making it more affordable and accessible.

Table of Contents

In Memoriam

3

GETTING BETTER EVERY DAY

4

Tracking patient outcomes to deliver higher value care	6
Getting faster relief from back pain	8
Collaborating to ensure surgical success	11
Bridging the gap between physician care and nursing	12
Dynamic duo	14
Impact of better	15
Getting better together	16

SHARING OUR KNOWLEDGE

22

Leading the way in battling a devastating infection	24
Giving autoimmune diseases a one-two punch	26
Helping patients recover from limb surgery safely	27
On the horizon: longer lasting relief from knee pain	30
Keeping Olympic athletes in the games	32
Improving patient satisfaction after knee replacement surgery	34
Impact of knowledge	37

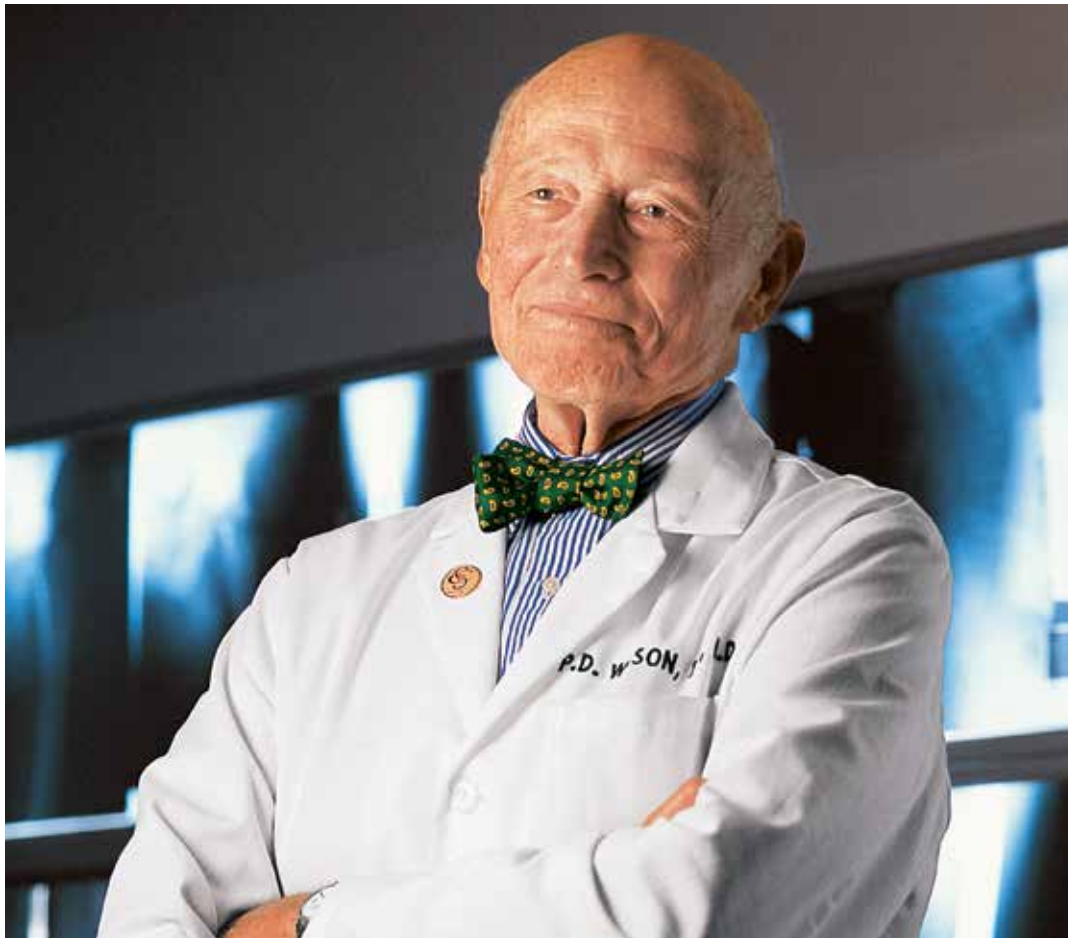
ACHIEVING SCALE

38

Getting the right diagnosis, from the comfort of home	40
Bringing HSS-caliber care closer to patients' homes	42
Advancing care, from China...	44
...to Greece	45
HSS impact in more than 120 countries	46

2016 Annual Report

48



In Memoriam

Philip D. Wilson, Jr., MD 1920–2016

Surgeon-in-Chief Emeritus (1972 to 1989)

Sought after by patients and admired by colleagues, Philip D. Wilson, Jr., MD, has left an indelible mark on HSS. “Dr. Wilson had a vision for the Hospital that has been fulfilled,” says Charles Cornell, MD, Attending Orthopedic Surgeon, one of Dr. Wilson’s mentees. “He foresaw HSS becoming the premier orthopedic hospital in the country, and much of his life was dedicated to accomplishing that.”

Dr. Wilson was passionate about advancing the field of orthopedic surgery. In 1967, he introduced total hip replacement at HSS, which revolutionized the treatment of painful hip arthritis. He also made it his mission to strengthen the Hospital’s research division. By recruiting talented engineers to work with orthopedic surgeons, Dr. Wilson transformed HSS into a leading joint replacement center. He also established a joint replacement registry of more than 1,200 patients to find out how hip replacement improved their quality of life over a 40-year period.

During his tenure as Surgeon-in-Chief, Dr. Wilson became director of the Hospital’s residency program and served as a role model for aspiring

young orthopedic surgeons. “We all wanted to emulate him,” says Paul Pellicci, MD, Attending Orthopedic Surgeon, who completed his residency under Dr. Wilson’s leadership.

Dr. Wilson recruited renowned physicians and recognized the importance of “best practices” in medicine before the concept became widespread. That led to new infection-control protocols in the operating room, improvements in anesthesia practices, and an emphasis on post-operative care.

Not only was Dr. Wilson a highly skilled surgeon and imitable leader, but he also helped establish the caring culture at HSS. He always put patients first. “For Dr. Wilson, it was always about doing the right thing,” says Douglas Padgett, MD, Attending Orthopedic Surgeon. He also had a way of making HSS staff members feel valued. Says Jo Hannafin, MD, PhD, Attending Orthopedic Surgeon: “Dr. Wilson knew everyone—the guys painting the hallways, the transport people, the X-ray staff, the faculty—and always made an extra effort to engage people.”

Adele Boskey, PhD 1943–2017

Senior Scientist, Program Director of the Musculoskeletal Integrity Program and Starr Chair in Mineralized Tissue Research

With a career spanning more than four decades at HSS, Adele Boskey, PhD, pioneered bone research, deepening our understanding of osteoporosis and related diseases. “She was a world leader in the investigation of bone mineralization and quality,” says Lionel Ivashkiv, MD, Chief Scientific Officer.

Dr. Boskey’s research was funded by the National Institutes of Health and resulted in more than 270 publications. She won many prestigious awards throughout her career, including the Distinguished Investigator Award from the Orthopaedic Research

Society/Orthopaedic Research and Education Foundation. She was recognized as a Pioneer in Orthopaedics by the Orthopaedic Research Society, which she served as the first female president.

As Director of Research from 1993 until 2002, Dr. Boskey was dedicated to training the next generation of scientists and clinicians. “She understood that research was a fundamental part of the HSS mission,” said Mathias Bostrom, MD, Attending Orthopedic Surgeon. “She was an amazing mentor with a strong commitment to the next generation of scientists.”

From left to right: Eric Franklin, sister Kim Sands and nephew Adam Sands are back in action following care at HSS.

GETTING BETTER EVERY DAY

Even after many years of world leadership, HSS patient care and overall performance are improving at an accelerating rate. Superior results earn us more opportunities, and more experience further advances performance. Our patient care gets better every day because HSS is getting better every day.

HSS has made an impact on countless patients' lives, helping them to return to what they need and love to do better than any other institution. We know this, in part, because of our exemplary patient satisfaction ratings and the more than 1,700 patient-submitted testimonials on our Back in the Game website. Despite our low readmission, complication and infection rates, which are unequaled, we are relentlessly improving across the spectrum of care with innovative techniques, products and services.

As we continue to get better, so will our patients. Take, for instance, the Franklin-Sands family members (at right), who have been coming to HSS over several decades. Kim Sands, 58, had an ACL reconstruction and meniscal surgery after skiing and horseback riding injuries, and her brother, Eric Franklin, 50, had a meniscus repair after a skiing injury. Kim's oldest son, Adam, had an ACL reconstruction, and her middle son, Jason, had a meniscal repair related to lacrosse injuries. Jo Hannafin, MD, PhD, Attending

Orthopedic Surgeon, performed the procedures. Kim and Eric's mother, Gail Franklin, had an ACL reconstruction in 1991. Russell Warren, MD, Attending Orthopedic Surgeon, performed the procedure and was assisted by Dr. Hannafin during her Sports Medicine Fellowship. Now Adam, 25, predicts that he will send his future children to HSS. Having experienced firsthand HSS's trajectory of continuous improvement, he is confident that the future will bring even better results.



Tracking patient outcomes to deliver **higher value care**

Prove it—or improve it. That's the mandate the Hospital's Value Management Office has been given. In order to deliver the highest-value musculoskeletal care, we must track how well our treatments are working. We are doing that now through our Patient Reported Outcome Measures (PROMs) initiative.

HSS has been collecting information on patients through our research

registries for years, but these data cover only a portion of our patients and have not been used routinely in care delivery. With the PROMs initiative, we will survey all surgical patients who come to the main campus in New York City by the end of this year and include nonsurgical patients next year. All patients will be given a general health survey—the

“There may be a role for Patient Reported Outcome Measures in helping physicians determine the best procedure or therapy based on a patient's individual characteristics.”

PROMIS Global, which asks about physical, mental and social health, as well as pain, fatigue and overall quality of life. A disease-specific measure will also be taken at appropriate intervals. For instance, a patient with hip arthritis will be given the HOOS, JR. survey, and a knee patient will take the KOOS, JR. survey (see “Simpler surveys for hip and knee replacement patients”). These questionnaires measure how much patients have improved since their treatment began. Ultimately, they will help us track how well patients do over time. “Our physicians will be able to show patients their progress over time,” says Catherine H. MacLean, MD, PhD, Chief Value Medical Officer.

Since December 2016, more than 14,000 HSS patients have completed

Simpler surveys for hip and knee replacement patients

In 2016, a multidisciplinary team led by Stephen Lyman, PhD, Associate Scientist, developed abbreviated surveys for hip and knee replacement patients. The Hip disability and Osteoarthritis Outcome Score (HOOS) JR. has six questions instead of 40; and the Knee injury and Osteoarthritis Outcome Score (KOOS) JR. has seven questions instead of 42. The goal is to reduce the amount of time it takes to collect data for hip and knee replacement surgeries, two of the most common and costliest hospital procedures. Questions focus on a patient's level of pain during routine activities and his or her ability to function on a daily basis (stand up after sitting and pick up an object on the floor, for instance). Both surveys were externally validated using data from the Agency for Healthcare Research and Quality-funded FORCE-TJR registry, and Medicare has adopted them for its total joint replacement bundled payment program.



surveys, and the results have been stored in Epic, our electronic medical record system. The Hospital's PROMs initiative is unique because we are able to collect a significant amount of data on patients due to our large volume of procedures. We will use the information to develop predictive models, meaning a physician will be able to tell a patient how likely she or he would be to do well with a particular treatment. "There may be a role for PROMs in helping physicians

determine the best procedure or therapy based on a patient's individual characteristics," says Dr. MacLean. "It's part of our personalized health management approach."

The PROMs initiative is one of several programs we have launched to advance our delivery of high-value care. To promote the development of new initiatives, the Hospital recently launched the Center for the Advancement of Value in

Musculoskeletal Care. It will provide a forum for Hospital staff members to brainstorm innovative ways HSS can improve our value-based care. Physicians, nurses, therapists, scientists, IT engineers, executives and others will conceive of and execute new projects. "The Center will help us achieve our goal of delivering the highest quality musculoskeletal care in the most efficient way possible," says Dr. MacLean.



Getting **faster relief** from back pain

When patients experience debilitating back pain, they want fast relief. Thanks to a new program called Fast Track, HSS can help make that happen. The program, currently in the pilot phase, is designed to refer patients to the most appropriate provider and begin treatment as soon as 24 to 48 hours after the initial appointment request.

After a back pain patient calls or emails HSS, he or she fills out a simple but

comprehensive spine intake form or answers questions on the phone. A physician-supervised Spine liaison and trained nurse practitioner (NP) review the form, then the NP refers the patient to the appropriate provider based on specific clinical criteria. In some cases, the NP will perform an in-person physical assessment and prescribe treatment. Spine, Physiatry and Pain Management physicians and physical therapists are always

on call to provide support and ensure access to HSS clinicians. “Many back pain patients feel they need to see a surgeon, when in fact they may benefit much more from seeing a physiatrist, pain management specialist or physical therapist,” says Frank Schwab, MD, Chief of the Spine Service and Attending Orthopedic Surgeon. “The goals are to give the patient access to the right specialist and get treatment considerably faster.”

Dr. Frank Schwab (left) focuses on treating spine conditions that require surgery.

The Fast Track program relies on a complex clinical algorithm that was more than a year in the making. Clinicians from different services, such as Spine, Neurology, Physiatry, Physical Therapy, Rheumatology, Internal Medicine and Pain Management, collaborated to produce evidence-based clinical pathways on matters such as when it's appropriate for a back pain patient to get an MRI. A Spine surgeon is always available to evaluate patients whose symptoms indicate the urgent need for surgery. Likewise, patients who can benefit from physical therapy may be able to start the same or next day. "Earlier treatment may give relief to patients so they can return to work

sooner or take care of their family," says Dr. Schwab. "It also helps them avoid becoming disabled from months of pain."

"The goals are to give the patient access to the right specialist and get treatment considerably faster."

Access to HSS physical therapists (PTs) is streamlined by New York's Direct Access law, which allows licensed PTs to practice on their own. That means patients are not required to get a physician's prescription prior to starting therapy. "Our PTs are highly trained, skilled and experienced, and we're proud

of that," says Joel Press, MD, Chairman of the Department of Physiatry and Physiatrist-in-Chief. "We're currently testing and retesting the triage process to ensure we're providing the appropriate level of access for patients."

Fast Track aligns with the Hospital's commitment to value-based care. "There is a good amount of data that show certain back pain patients don't always need lots of expensive imaging or to see a surgeon," says Dr. Schwab. "Fast Track is an innovative approach to offering better service to our patients and treating them in a more efficient way."



Dr. Joel Press checks patient William Bauer's form along with physical therapist Lauren Alix.



Collaborating to ensure surgical success

HSS has among the lowest infection, readmission and complication rates in the country, but we're always striving to do even better. That's why HSS launched the Pre-Surgical Optimization Program in April. "To optimize care in the post-operative period and even the intraoperative period, we need to do a good job in the pre-operative period," says Catherine MacLean, MD, PhD, Chief Value Medical Officer.

Certain factors are known to raise a patient's risk of surgical complications, such as a high body mass index, or BMI (a measure of a person's size based on weight and height), diabetes, dementia, depression, opioid use and psychosocial factors, such as the inability to carry out the activities of daily life. Although HSS physicians have always helped patients manage these risk factors prior to surgery, this new program, which is in the pilot phase, will standardize pre-surgical care. "The goal is to improve the entire episode of care for patients," says Susan Flics, MA, RN, MBA, Vice President of Operations.

Patients who are identified as high risk are guided through pre-surgical treatments designed to optimize their health prior to surgery. They are referred to the appropriate specialist based on their risk factors, such as a pain management expert, comprehensive weight management specialist or mental health provider, to bring any presenting problems under control.

"We have put into place a mechanism to manage each risk factor," says Dr. MacLean.

A team of surgeons, internists, anesthesiologists, psychiatrists, nutritionists, case management leaders and clinical data managers collaborated for more than a year to formulate these strategies, which are initially being used with total hip and knee replacement patients. In the program, a patient's readiness for surgery is assessed using a number of evidence-based tools. These include the American College of Surgeons' NSQIP (National Surgical Quality Improvement Program) Surgical Risk Calculator, which estimates the chances that a patient might experience a surgical complication based on risk factors, such as smoking, or the presence of a chronic condition, such as heart failure. The surgeon uses the information to decide when to schedule a patient for surgery. Any patients who are referred for pre-surgical treatment are tracked so their physician can monitor their progress. "The program gives HSS physicians the framework and organizational support to help their patients succeed," says Flics.

Data collected during the pilot will help the team fine-tune the program before it is expanded to other service lines. "We want to ensure that patients are treated in the safest possible way," says Alejandro Gonzalez Della Valle, MD, Attending Orthopedic Surgeon, who is participating in the pilot. "If we can improve a patient's condition, then he or she will do better."

Preventing complications

Addressing the following risk factors prior to surgery helps reduce the chances of experiencing medical problems afterward:

- a Body Mass Index (BMI), a measure of a person's size based on weight and height, greater than or equal to 40 or less than 18.5
- taking opioids daily for longer than six months and/or having a history of a substance disorder
- an A1C level (a measure of blood sugar) higher than 8 in patients with diabetes
- a General Practitioner Assessment of Cognition (a measure of cognitive impairment) score less than 5 and/or "yes" answers to any Psychosocial Assessment questions (a measure of psychological or social factors that may affect recovery); and/or a Patient Health Questionnaire-2 (a depression screening tool) score greater than 3

Dr. Shevaun Doyle, Associate Attending Orthopedic Surgeon, and Alyson Insull, Nurse Practitioner, perform a follow-up visit with patient Alexa Green, who is recovering from a broken elbow.

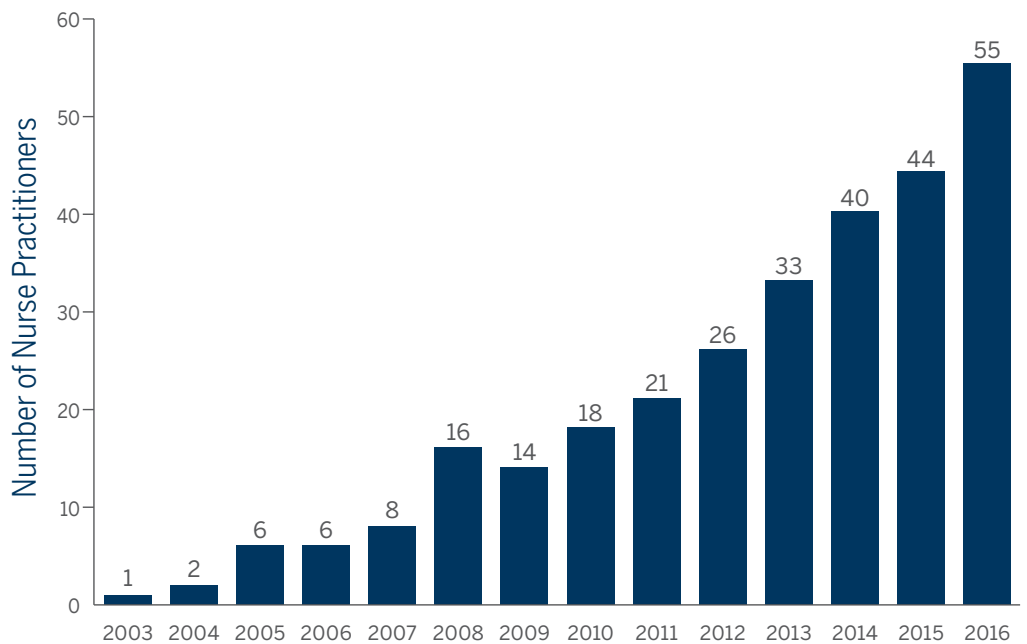
Bridging the gap between physician care and nursing

To ensure that we're delivering the most effective care, HSS employs more than 250 Advanced Practice Providers (APPs). We have 175 Physician Assistants (PAs), who can perform physical exams; order and review laboratory tests; assist in surgery; and write prescriptions under the supervision of physicians. There are also 21 Certified Registered Nurse Anesthetists (CRNAs), who provide anesthesia and related care to patients under the supervision of HSS anesthesiologists. More recently, we've hired a large number of Nurse Practitioners (NPs). We hired the first NP in 1996, and in 2006 we had six on staff. By 2016, that number had increased ninefold—to 55 NPs—and continues to grow. (HSS is expanding the post-operative care service and will hire one NP for each off-site location.) "Today, we're seeing patients with more comorbidities, such as diabetes, and NPs can provide immediate disease-specific care," says Stephanie Goldberg, RN, MSN, NEA-BC, Senior Vice President, Patient Care Services, and Chief Nursing Officer. "They

can also help us advance patients through the continuum of care more efficiently." Indeed, NPs help transition patients from the pre-operative phase to discharge at HSS.

NPs are registered nurses who have completed a master's or doctoral degree in nursing and have advanced clinical training,

Nurse Practitioners at HSS





board certification, additional licensure and an expanded scope of practice. They typically have five to eight years of nursing experience and often specialize in a certain area, such as pediatrics or acute care. NPs are able to order, perform and interpret diagnostic tests, such as X-rays; prescribe medications and other treatments; and perform minor surgical procedures.

“The Center for Advanced Practice Nursing, which is one of only about a dozen across the country, is expected to serve as a model for other hospitals.”

At HSS, NPs are used in specific areas of care. For instance, there are 10 NPs in post-operative care; seven in pain management; six in anticoagulation; five in the post-anesthesia care unit (PACU); four in pediatric orthopedics; two in cardiology; two in diabetes care; two in radiology; one in spine; and one in wound care. If a patient with diabetes is having trouble managing his or her blood sugar, for instance, an NP specializing in diabetes care can provide guidance. Similarly, if there is a wound problem, the wound care NP can be consulted. NPs who specialize in cardiology provide cardiac device assessments, and those who work in the anticoagulation service monitor patients who are prescribed Coumadin post-operatively. “As

medical providers with nursing backgrounds, they can best bridge the gap between nursing and physician care,” says Goldberg. High-quality NP care can also help reduce patient readmissions and ER visits.

To promote the important roles of APPs at HSS as well as in New York City and across the country, HSS established the Center for Advanced Practice Nursing in 2016. The Center develops policies and processes, such as how to orient new APPs to HSS and train them to use Epic, our electronic medical record system. It also creates policies on recertification and professional development, as well as complex case review procedures. The Center recently relaunched the Advanced Practice Council, which meets once a month. It provides a forum for the Hospital’s NPs and CRNAs to discuss new ideas and offer feedback on a variety of topics.

To ensure that HSS APPs are functioning at the top of their licenses, the Center is promoting their roles and educating physicians about their utility and how they can improve patient care. The Center, which is one of only about a dozen across the country, is expected to serve as a model for other hospitals. “I always felt there was a role for NPs at HSS, and to see it evolve to this point is so satisfying,” says Goldberg. “Now we’re meeting the needs of patients with a structure in place.”



Dynamic duo

HSS attracts many athletes who want to avoid injury—or bounce back quickly from one—so they can continue competing. Case in point: Hank Berger, 60, and his son, Ian, 26, who are competitors in CrossFit, a high-intensity blend of gymnastics, weight-lifting and other cardio movements. Multiple injuries have led to procedures performed by Answorth Allen, MD, Associate Attending Orthopedic Surgeon and Team Orthopedist for the New York Knicks basketball team.

In 2012, Hank, of Oceanside, NY, tore his left rotator cuff, a group of four muscles that help rotate the shoulder and lift the arm. “Dr. Allen helped me get through the injury to effectively compete at the CrossFit games without surgery,” recalls Hank. While competing, Hank tore his tricep muscle and needed surgery to repair it. “Dr. Allen helped me recover quickly,” says Hank. “I’m very grateful.”

Dr. Allen knows how important CrossFit is to Hank, so he accommodates him whenever possible. “He took the time

to understand me as an athlete,” says Hank, who routinely sends Dr. Allen updates and photos of his competitions. “Knowing that I would continue to train rigorously, he placed anchors in my tricep and bicep muscles. He is attuned to my needs.”

Despite Hank’s numerous injuries, he does not worry that he will become injured during a competition. “I feel 100 percent confident that Dr. Allen’s care and procedures will allow me to compete at the games,” he says. “HSS has given me the physical ability to continue my passion.”

Similarly, when Ian, of New York City, became injured during a regional competition, Dr. Allen gave him cortisone injections so that he could continue to perform at a high level. Surgery was scheduled after the games were over. “When it was time to get my shoulder



Father-son CrossFit athletes Ian and Hank Berger (top) are able to continue competing thanks to Dr. Answorth Allen (above right).

checked out, I didn’t need to look anywhere else besides HSS,” recalls Ian, a gym owner and personal trainer. Ian could not hold anything over his head due to a tear in the labrum, the cartilage that lines and reinforces the shoulder joint, and had reconstructive surgery with Dr. Allen. “Now my shoulder is a lot more stable, and I am rebuilding my strength,” he says.

Today, Hank is ranked 40th in the world in the CrossFit 60+ Masters Division. “I’m passionate about CrossFit, and I would be depressed if I could not continue to compete,” he says. “Dr. Allen has kept me in the games.”

IMPACT OF BETTER

Every day, HSS advances capabilities, practices, care and patient experience.

25,000+

total joint implants we have retrieved and studied since 1977 to obtain insights into how design and material differences impact performance. It's the largest archive of its kind in the world.

>4.5x

HSS performs substantially more total joint replacements than other top national hospitals.

SOURCE: HSS internal data, CMS MedPAR, Quantros, Inc., Oct. 2014-Sept. 2015, Orthopedic Surgical Volume

 **27%**

fewer readmissions after hip or knee surgery than the national average⁽¹⁾

 **91%**

patients who would recommend HSS⁽²⁾
72% of patients, on average, would recommend other hospitals nationwide⁽²⁾

 **40%**

improvement in patient length of stay at nursing facilities after discharge from HSS

Fewer Complications⁽³⁾



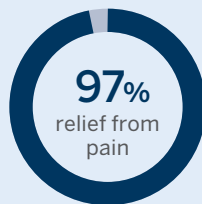
SOURCES: ⁽¹⁾ MedPar Data via Hospital Compare, July 2012–June 2015 ⁽²⁾ hcahpsonline.org, Centers for Medicare & Medicaid Services, Baltimore, MD 2013 ⁽³⁾ CareChex National Quality Rating Database, Medicare FFY2014, Major Orthopedic Surgery (spine, hip, knee, arm, hand, shoulder)

Patients report improvement two years after:

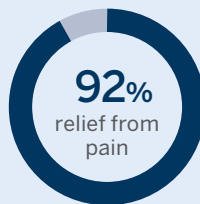
Total Hip Replacement



Total Knee Replacement



ACL Reconstruction



SOURCES: HSS Arthroplasty Registry, 2007-2012

SOURCES: HSS Arthroplasty Registry, 2007-2012

SOURCES: HSS ACL Registry, 2009-2012

#1 in the U.S. for Orthopedics

For the eighth consecutive year, HSS has been ranked #1 by *U.S. News & World Report* "Best Hospitals" (2017-2018 rankings)

Best in Manhattan for Pediatric Orthopedics

HSS ranking in our second year of eligibility by *U.S. News & World Report* (2017-2018 rankings)

#1 Orthopedic Residency Program

in both reputation and research output by the professional healthcare network Doximity



**GETTING BETTER
TOGETHER**

It all began in 1978, when James Devine, 14, was hit by a car, suffered a severe leg injury and needed surgery.

After the procedure, which was not performed at HSS, he was left with a limp and one leg that was shorter than the other. James' mother, Rose, brought him to countless physicians in the New York area, and all told her nothing could be done. Refusing to accept that answer, Rose, carrying a tattered folder with James' medical records, continued to visit more physicians in search of a solution for her son. Eventually, a physician reluctantly told Rose that there was only one place that might be able to help: HSS. She took James to see Leon Root, MD, who was Chief of Pediatric Orthopedic Surgery at the time. Dr. Root returned James' legs to perfection, and he went on to have a successful boxing career.

From that point on, the Devine family—and eventually the O'Keefe family (James' sister, Mary Ellen, married Joseph O'Keefe)—knew where to turn whenever anyone had an orthopedic condition or injury.

Today, 39 years after James' injury, six family members have been treated by six different HSS physicians—with life-changing results.

For their stories, open the flaps.



1982

James Devine

Physician Leon Root, MD, Chief Emeritus,
Pediatric Orthopedic Surgery (passed away in 2015)

Diagnosis compound fracture of the right tibia (shinbone) after being struck by a car in 1978. One year later, his right tibia was shorter than the left. In 1981, James experienced knee pain as a result of the 3-centimeter leg length discrepancy.

Procedure surgery to shorten the left tibia so it would match the right tibia

How HSS changed his life "After graduating from high school, I became a competitive boxer. I was a 1984 NJ Golden Glove middleweight finalist and the 1986 Florida Golden Gloves light-heavyweight champion."



1991 2006 2015

Rose Devine

James' mother

Physicians Frank Cammisa, MD, Attending Orthopedic Surgeon and Chief Emeritus of the Spine Service
Mathias Bostrom, MD, Attending Orthopedic Surgeon and Chief of the Hip Service
Joshua Dines, MD, Associate Attending Orthopedic Surgeon

Diagnoses/Procedures In 1991, Rose was diagnosed with spinal stenosis—a narrowing of the spinal canal—that led to leg pain and weakness and difficulty walking. She had a microsurgical decompressive laminectomy to relieve the pressure on the nerves in the area. In 2009, she was diagnosed with osteoarthritis in the left hip and had a total hip replacement. In 2015, she had repair procedures for a torn rotator cuff.

How HSS changed her life "After each of the surgeries, I resumed my daily activities without any pain. I've enjoyed spending time with my three children and five grandchildren. Today, I continue to lead an active life, and I'm able to walk unassisted."



2006

Joseph C. O'Keefe Sr.

James' sister's father-in-law

Physician Geoffrey Westrich, MD,
Attending Orthopedic Surgeon

Diagnosis osteoarthritis

Procedure total knee replacement (left knee)

How HSS changed his life "I was playing golf three months after the surgery. The following year, during a family vacation, I was crossing a field with two of my grandchildren and saw the rest of the family waiting for us. I said, 'Come on, let's run...we're keeping everybody waiting.' When we arrived, one of my daughters said she had never seen me run before. It was probably the first time in 30 years that I could."



2014

Joseph O'Keefe

James' nephew

Physician Michelle G. Carlson, MD, Associate Attending Orthopedic Surgeon

Diagnosis thumb fracture

Procedure open reduction internal fixation, which restores the joint

How HSS changed his life "I recovered fully three months after the injury. Immediately afterward, I joined my high school crew team, and we rowed to a Garden State Championship victory in May 2015. One month later, I represented my high school and state in the High School Nationals."



2015-2016

Elizabeth O'Keefe

James' niece

Physician Sabrina Strickland, MD, Associate Attending Orthopedic Surgeon

Diagnosis chondromalacia patella/patellofemoral syndrome (knee pain caused by cartilage damage)

Procedure hyaluronic acid injections, which have lubricant and anti-inflammatory effects

How HSS changed her life "Not only was I able to continue playing on my high school varsity tennis team during my treatment, but my doubles partner and I received the First Team All-County award for a second time. I was also the tennis team captain that year."



2016-2017

Edward O'Keefe

James' nephew

Physician David Scher, MD,
Associate Attending Orthopedic Surgeon

Diagnosis tibia (shinbone) fracture

Procedure realignment of the broken bone

How HSS changed his life "Six months after my ski injury, I was able to resume all of my normal activities. Over the summer, I enjoyed hiking, wakeboarding, water skiing and tennis. Now I'm looking forward to resuming competitive ski racing."





FOUR DECADES OF PROGRESS

Between 1982 and 2017, the period during which the Devine/O'Keefe family members were treated at HSS:

HSS experts submitted **495 invention** disclosures and
were issued **147 patents**

There were more than
800 educational modules and **56,576** course enrollments
in **HSS eAcademy®**

The **total circulation of HSS Journal®**,

which contains peer-reviewed research and review
articles on musculoskeletal diseases and conditions,
as well as their diagnosis and treatment,

was **480,000**

Lupus patient Monique Gore-Massy is able to enjoy quality time with her beloved pup, Mr. Chip, because Dr. Doruk Erkan has helped to get her symptoms under control.

SHARING OUR KNOWLEDGE

Our enormous and accelerating capacity to capture and apply knowledge enables our clinicians to deliver the highest quality care and best outcomes, and advances the global state of the art in musculoskeletal health.

At HSS, our knowledge of musculoskeletal medicine drives our global influence. Our cutting-edge expertise is constantly advancing the field, leading to groundbreaking treatments and inventions, which often become available around the world—everywhere from Australia and China to Brazil and Germany. Our clinicians and scientists are always searching for new

and innovative ways to prevent and treat devastating conditions, ranging from periprosthetic joint infections to lupus. And patients around the world—including Monique Gore-Massy (at right)—benefit greatly. Diagnosed with lupus in 2010, Monique, now 38, was in and out of the hospital and unable to get out of bed on her own until she came to HSS in 2014. Her comprehensive

treatment plan and confidence in her physician, Doruk Erkan, MD, Associate Attending Rheumatologist, have given her hope—and improved her quality of life dramatically. She can now travel to appointments on her own, take walks with her beloved pup, Mr. Chip, and socialize with her husband—activities she does not take for granted.



Leading the way in battling a devastating infection

Infection after knee or hip replacement surgery is one of the most debilitating complications an orthopedic patient can face. A periprosthetic joint infection occurs at the site of an implant. Normally, the body's tissues can fight off bacteria. But an implant is a foreign body, and bacteria can become attached and create a "slime layer" (glycocalyx) that substantially decreases the effectiveness of antibiotics. So the surrounding tissues are more vulnerable to infection.

Unfortunately, these infections are difficult to diagnose and treat and often lead to costly revision surgery. "The No. 1 concern patients have is infection,"

says Geoffrey Westrich, MD, Attending Orthopedic Surgeon and Research Director of the Adult Reconstruction and Joint Replacement Service. "We have put a tremendous amount of time and effort into our ability to diagnose and treat the problem." Dr. Westrich and Barry Brause, MD, Attending Physician and Director of Infectious Diseases, are co-chairs of the multidisciplinary Infection Control Committee, which meets once a month. The Committee is dedicated to ensuring and maintaining the Hospital's very low rate of periprosthetic infection. With a rich database detailing some 750 periprosthetic joint infections, HSS is uniquely positioned to conduct critical

research in this area. Studies that are underway or were recently completed are yielding important insights in three areas:

Prevention

At HSS, patients are evaluated pre-operatively for problems and processes that could increase their risk of infection. Risk reduction strategies are then employed to decrease their chances of developing an infection. HSS has also championed systems and techniques that create "clean air" in the operating room and reduce patients' exposure to microorganisms. Our researchers are now investigating ways to further reduce the risk of infection. Some studies have shown that post-surgical infection occurs in upwards of 10 percent of obese patients, so HSS physicians are investigating using BMI (a measure of a person's size based on weight and height) to establish an appropriate threshold above which surgery is best delayed. They are also studying the relationship between diabetes and surgical site infections.

To avert infection, HSS researchers are also focusing on treating people who carry the resistant strain of the bacterium *Staphylococcus aureus* (*Methicillin-resistant Staphylococcus aureus*, or *MRSA*)—a common cause of post-surgical infection—in other parts of their bodies, such as the nostrils and armpits. A recent study showed that treating all high-risk patients with antibiotics was just as cost-effective as

Dr. Geoffrey Westrich is a leader in research on periprosthetic joint infections.



Dr. Laura Donlin is studying a technology that can be used to rapidly and precisely identify the cause of a patient's infection.

treating only those patients whose nasal swabs tested positive for the bacterium.

Diagnosis

Diagnosing an infection can be challenging, so HSS scientists are assessing whether magnetic resonance imaging (MRI) can be an accurate tool. The imaging technique might also help determine whether a patient's infection is acute or chronic. "I'm excited about this research because there's a void in this area," says Dr. Westrich. "We need to do a better job helping surgeons diagnose infection when it's not so obvious."

Another challenge is pinpointing an infection quickly and accurately. Clinicians often must wait several days for samples of bacteria to grow in a lab in order to identify the culprit behind an infection. Sometimes the specimen is contaminated by bacteria from other sources, like the patient's skin, and other times it doesn't grow at all. To improve the accuracy and speed of diagnosis, HSS researchers are investigating whether a technology known as next-generation DNA sequencing can be used to rapidly and precisely identify the organism or organisms responsible for a patient's infection and treat him or her appropriately. "The goal is to hit it right the first time—and do it quickly," says Laura Donlin, PhD, Co-Director of the HSS Precision Medicine Laboratory. "Two or three days can mean the difference between having a washout [a simple cleaning of the infected site] and extensive



reconstructive surgery." Dr. Donlin is collaborating with Michael B. Cross, MD, Assistant Attending Orthopedic Surgeon, on this study, which is supported by a grant from the Price Family Foundation.

Treatment

HSS researchers are exploring the optimal treatment strategy for patients with persistent periprosthetic infections. Currently, the gold standard is a two-stage revision, which was designed and pioneered at HSS. In the first stage, the implant is removed along with infected tissue, and an antibiotic-filled cement spacer is inserted. After six weeks of intravenous antibiotics, a new implant is placed. The success rate for the surgery is above 90 percent for both knee and hip replacement patients. In the one-stage procedure, the infected prosthesis is removed, the area is cleaned, and a new implant is placed. Then the patient is put on a six-week course of antibiotics. "There are advantages and disadvantages of doing the surgery in one stage," says Dr. Westrich. "The advantages include one surgery rather than two and a quicker

recovery, and it could potentially be more cost effective. The disadvantages are mostly that historically one-stage treatment has not had as high of a success rate as a two-stage treatment." Of note, the one-stage treatment has been shown to be effective in Europe, so HSS is participating in a multicenter, randomized, prospective study to evaluate it. Dr. Cross, who is leading this study for HSS, received a grant from the Price Family Foundation.

HSS researchers are also evaluating the cost-effectiveness of different types of antibiotic spacers, which are designed to fight infection in knee replacement patients. They compared prefabricated spacers, those made from a mold (both commercial and homemade), and spacers fashioned from a part of the femur that is removed, sterilized and reattached to the joint with antibiotic cement. The spacers performed similarly, but the homemade version cost thousands of dollars less per patient. "There's a huge variation in cost," points out Dr. Westrich. "The amount of money that could be saved nationally is significant."



Giving autoimmune diseases **a one-two punch**

Patients with autoimmune diseases, such as rheumatoid arthritis (RA) and lupus, may soon have access to a more effective treatment with fewer side effects than current medications. HSS scientists have discovered two key molecular pathways that are implicated in the inflammation and scarring caused by autoimmune diseases, in which the immune system attacks the body.

The journey of inquiry began when Carl Blobel, MD, PhD, Senior Scientist and Director of the Arthritis and Tissue Degeneration Program, identified the role of a protein called iRhom2, which tends to be high in patients with RA. iRhom2 regulates TACE, a substance responsible for releasing TNF-alpha, which triggers the body's immune response and promotes inflammation. "When TNF-alpha is dysregulated, it leads to inflammation and autoimmune diseases like RA," says Dr. Blobel. He and other HSS researchers found that by targeting iRhom2, they could inactivate TACE and calm an overactive immune system.

Targeting iRhom2 has an added bonus: It would "hit" another important pathway involved in autoimmune diseases, according to Jane Salmon, MD, Senior Scientist, Collette Kean Research Chair and Director of the Lupus and APS Center of Excellence.

iRhom2 plays an important role in the epidermal growth factor receptor (EGF) pathway, which causes damage associated with lupus and RA. For instance, Drs. Blobel and Salmon discovered that the EGF pathway, which is activated in lupus patients with kidney disease, determines whether lupus-related inflammation scars and damages a patient's kidneys. Blocking the pathway could prevent such organ damage. "In my 30 years of doing biomedical research, this is by far the most attractive target for translational work that I've encountered," says Dr. Blobel.

The next step is to come up with a drug that blocks iRhom2. By targeting the TACE and EGF pathways, the new medication would be more effective than current ones. RA patients are often given anti-TNF drugs, which only target the TNF-alpha pathway, and lupus patients often take medications that suppress the immune system. Both drugs can lead to infection.

The research highlights the unique culture of collaboration at HSS. Says Dr. Salmon: "All of us are committed to studying particular pathways that cause disease, so incidental meetings in the hallway can lead to productive partnerships like the one that Carl and I have created."

Drs. Jane Salmon and Carl Blobel (at left) have identified two important molecular pathways that may lead to new treatments for autoimmune diseases.

Helping patients **recover** from **limb surgery safely**

During a car accident in 2010, Henry (Hank) Daniecki broke both legs and arms, as well as his pelvis and ribs. “The first doctors who treated me said I might never walk again,” recalls Daniecki, 38, of Cream Ridge, NJ, who enjoyed surfing and playing basketball. “I felt ruined.”

When Daniecki tried to stand for the first time after the accident, he discovered his right leg was bowed and shorter than the left and his left forearm was crooked. The bones in his arm and leg had not properly healed. “My doctors said they couldn’t do anything more for me,” he says.

Desperate to resume his active lifestyle, Daniecki searched for a new physician. He found S. Robert Rozbruch, MD, Chief of the Limb Lengthening and Complex Reconstruction Service. “I told Hank I could repair the nonunions [in which a broken bone does not heal] in his leg and arm,” says Dr. Rozbruch. This involved cutting the broken bones and

Dr. S. Robert Rozbruch and Hank Daniecki received a patent for a device designed to improve recovery for people with lower extremity injuries.

“We think Soleforce™ is revolutionary in terms of improving patient safety and increasing the precision of our surgical outcomes.”

relying on their regenerative properties to straighten and, in the case of his leg, lengthen. For three months, Daniecki wore a metal device called a fixator, which held the leg bones together in two places and shaped them while they healed.



In between Daniecki's five surgeries at HSS, he and Dr. Rozbruch discussed the challenges of rehabilitation. "How do you protect the leg during the healing process? You need to limit weight-bearing activities," says Dr. Rozbruch. The rule of thumb, based on engineering data, is to avoid putting more than 50 pounds of weight on your legs during the initial phases of rehabilitation. The problem is that patients don't know what 50 pounds of pressure feels like. "There's a lot of precision in the prescription but not in the execution," says Dr. Rozbruch.

The stakes of miscalculation are high. Daniecki refractured his leg when he pushed himself too hard during physical therapy before coming to HSS. "Throughout the whole process, I worried, 'Am I going to break something again?'" he says.

Dr. Rozbruch, who had wanted to come up with a solution to the problem for two decades, knew Daniecki was an engineer. "I said, 'Why don't we create a device that can help bring some precision to this?'" he recalls.

Daniecki spent a year creating prototypes for such a device. The result is Soleforce™, a "smart" insole equipped with sensors that gauge the amount of force a patient puts on a limb. It provides feedback in real time, just as a car's speedometer tells a driver how fast he or she is going. A LED display mounted on top of the foot illuminates every time a patient takes a step so he or she knows whether he or she is applying too little, too much or the right amount of force to his or her limb. If a patient puts more weight on his or her foot than prescribed, an alarm sounds. "It's biofeedback, as it trains the patient to stay within the prescribed weight range," says Dr. Rozbruch.

Soleforce™ can be attached to a cast shoe or placed in an orthopedic boot or sneaker. Data transmitted from the device through a smartphone using Bluetooth technology can help physicians track how their patients are doing and fine-tune their rehabilitation prescriptions.

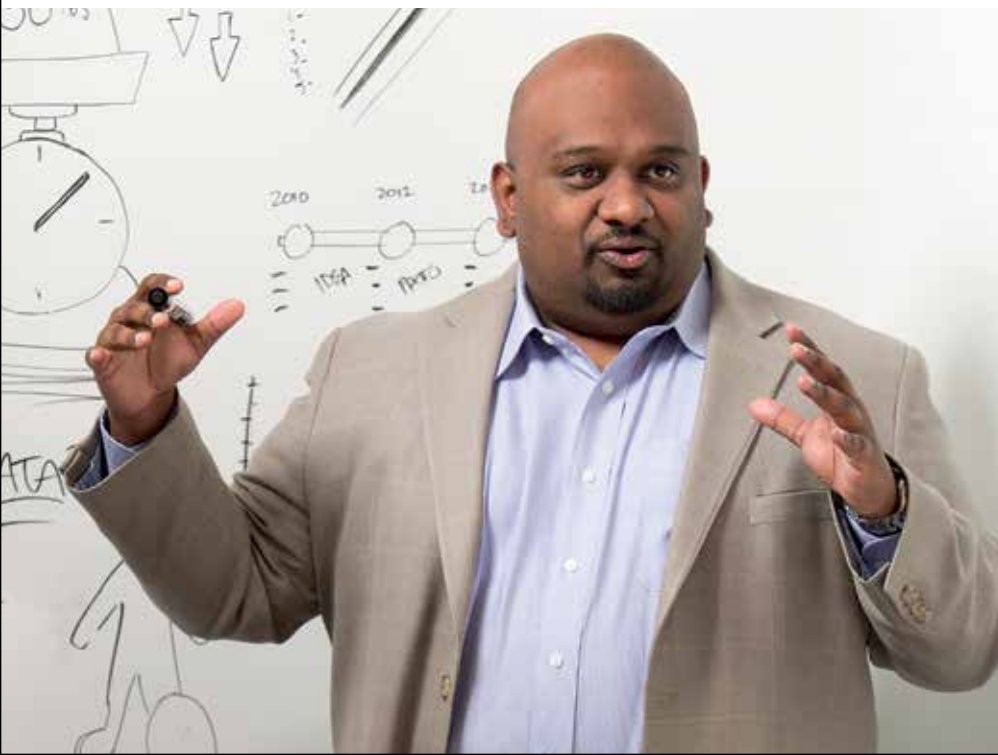
With each step they take, patients who use Soleforce™ improve their ability to stay within the weight-bearing range prescribed by their physicians. In studies conducted at HSS, all patients increased their accuracy in applying weight to their limbs, with 95 percent coming within 25 percent of their prescribed weight-bearing range.

"The primary goal is to increase patient safety," says Dr. Rozbruch. "The secondary goal is to collect data, which will help us correlate the use of the device with outcomes." He anticipates that Soleforce™ will decrease the chances of post-surgical complications, reducing the need for costly revision surgeries. The device may also prove useful for patients who have lower extremity fractures or are recovering from lower extremity reconstructive procedures.

Dr. Rozbruch, Daniecki and David Goral, another engineer, patented the device and partnered with HSS's Global Innovation Institute to help commercialize the technology. Their goal is to attain an ICD-10 code, which will allow insurance reimbursement for prescription of the device. Soleforce™, which may eventually become the standard of care in limb rehabilitation, could reach the market in three or four years.

In the meantime, Daniecki has healed fully and is back to waterskiing, surfing and playing basketball. "When I think about what Dr. Rozbruch and HSS did for me, it's unbelievable," he says. "When I first came here, I could not stand or use my arms. And to be able to make something that could help me and other patients down the road is very exciting."

Continued on page 29



Chief Innovation Officer Leonard Achan, RN, MA, ANP, is helping to commercialize Soleforce™.



Patient Nathan Peske, who recently underwent limb lengthening, is using Soleforce™ to ensure he is putting the right amount of force on his leg while walking.

Dr. Rozbruch is just as enthusiastic about Hank’s recovery and Soleforce™. “We think it’s revolutionary in terms of improving patient safety and increasing the precision of our surgical outcomes,” he says. “It’s exciting to partner with both HSS and my patient.”

Since this article was written, Hank Daniecki died in a car accident in which the other driver was charged with Driving While Intoxicated (DWI). Dr. Rozbruch and David Goral are saddened by the loss of their partner, but they are determined to continue developing Hank’s invention and dream. Dr. Rozbruch, David and the entire HSS family are grateful to Hank for his work in advancing patient care and extend our deepest condolences to his family and friends.

On the horizon: **longer lasting relief** from knee pain

Knee osteoarthritis—a condition that occurs when cartilage, which cushions the joint, breaks down, causing pain and stiffness—is the leading reason for total knee replacement. But some patients aren't ready for surgery. For instance, young people with the condition want to keep their own knees as long as possible, and others have medical conditions—such

as severe heart disease and pulmonary hypertension—that make an operation risky.

Typically, patients with severe osteoarthritis are given cortisone, a steroid medication that is injected directly into the arthritic knee. It reduces inflammation, providing pain relief, but there are limitations. Patients may need to return for subsequent injections, and the injections may become less effective.

To take a new approach, HSS physicians and scientists have developed an implant that may provide more sustained pain relief and thereby improve joint function. It's a small titanium screw that contains the drug dexamethasone, the same medication used in cortisone injections. The device is designed to release the medication into painful knee joints over a six- to 18-month period.

The combination device, consisting of polymer/drug and metal housing, is implanted into a non-weight-bearing part of the joint in an outpatient procedure while the patient is sedated. "It provides a steady state dose, so patients get the same amount of cortisone in the joint every day and for a longer period of time," says Mark P. Figgie, MD, Chief of the Surgical Arthritis Service and the study's principal investigator.

Dr. Robert N. Hotchkiss was one of the inventors of the device, which is designed to release medication into painful knee joints over a six- to 18-month period.





“The new drug delivery implant provides a steady state dose, so patients get the same amount of cortisone in the joint every day and for a longer period of time.”

The implant’s inventors, Robert N. Hotchkiss, MD, Medical Director, Innovation, and John Koski, MD, of Allen & Company, came up with the idea about a decade ago when they learned that a similar device was being used for eye conditions. Last August, HSS surgeons submitted an Investigational New Drug application to the U.S. Food & Drug Administration. They began a study of six patients to evaluate safety and efficacy in those who are eligible for knee replacement surgery. The study will be completed this year. Depending on the outcome, more clinical testing will be required. With more testing and development, other locations and conditions may benefit from this concept.



From left to right: Dan Choi, M.Eng, Design Engineer; Joseph Lipman, MS, Director of Device Development; Dr. Mark Figgie; and Donna Rounds, PhD, Senior Director, Technology Development, discuss their research on a drug delivery device for knee pain.



Keeping Olympic athletes in the games

At the 2016 Olympic Games in Rio de Janeiro, Brazil, volunteer health personnel were better equipped to manage injuries ranging from jammed fingers to broken legs thanks to the Hospital's new Sports Emergency Curriculum. With more than 11,000 elite athletes participating, the Games rely on medical volunteers from many

different fields, including primary care and cardiology. "The goal was to help practitioners be prepared for the types of medical problems they might encounter taking care of athletes," says Scott A. Rodeo, MD, Co-Chief Emeritus of the Sports Medicine and Shoulder Service and Chairman of the Sports Medicine Committee for the United States

Olympic Swim Team. "HSS has the largest sports medicine department in the U.S., so we have a tremendous depth and breadth of expertise in surgery, primary care, rehabilitation, sports nutrition and sports psychology."

The curriculum is available via HSS eAcademy®, the Hospital's digital



Dr. Scott Rodeo developed a curriculum to help practitioners care for injured or ill athletes during competitions.

courses are free, and those who participate will receive Continuing Medical Education credit.

To date, there have been more than 3,000 enrollments in the Sports Emergency Curriculum, and it's the fastest growing curriculum on HSS eAcademy®. "Clinicians are clearly finding the information valuable," says Dr. Rodeo.

This is not the first time HSS has been involved in the Olympics. Over the years, HSS physicians have treated a host of U.S. teams that participate in the Olympics. Dr. Rodeo has volunteered at four Olympic competitions, and last year eight HSS physicians served as volunteers at the Games.

The Sports Emergency Curriculum is versatile; it can be repurposed or customized for clinicians volunteering at sporting events in their communities and beyond. For instance, it could be used for the Pan American Games and the 2018 Winter Olympics in South Korea. "To the best of my knowledge, we are the only hospital that has created such a program," says Dr. Rodeo. "And we have received very positive feedback."

platform for professional education programs. It's a five-part series of free, downloadable videos designed to guide appropriate and timely care and return elite athletes to play following injury or illness. Topics include creating an emergency action plan

and managing acute medical illness, on-site orthopedic emergencies, on-field athletic injuries, and the doping control process.

A wide variety of clinicians can benefit from the curriculum, including orthopedists, emergency medicine physicians, sports medicine specialists, primary care physicians, family medicine practitioners, physiatrists, physical therapists, athletic trainers, podiatrists, prosthesis specialists, nurses, nurse practitioners and licensed massage therapists. The

3,234

enrollments in the Sports Emergency Curriculum

(as of July 2017)

Improving patient satisfaction after knee replacement surgery

A multidisciplinary team of clinicians and scientists aims to improve outcomes after knee replacement.

From left to right, front row: Drs. Thomas P. Sculco, Surgeon-in-Chief Emeritus and Attending Orthopedic Surgeon; Hollis Potter; Timothy Wright; and Christina Esposito, Assistant Scientist, Department of Biomechanics.

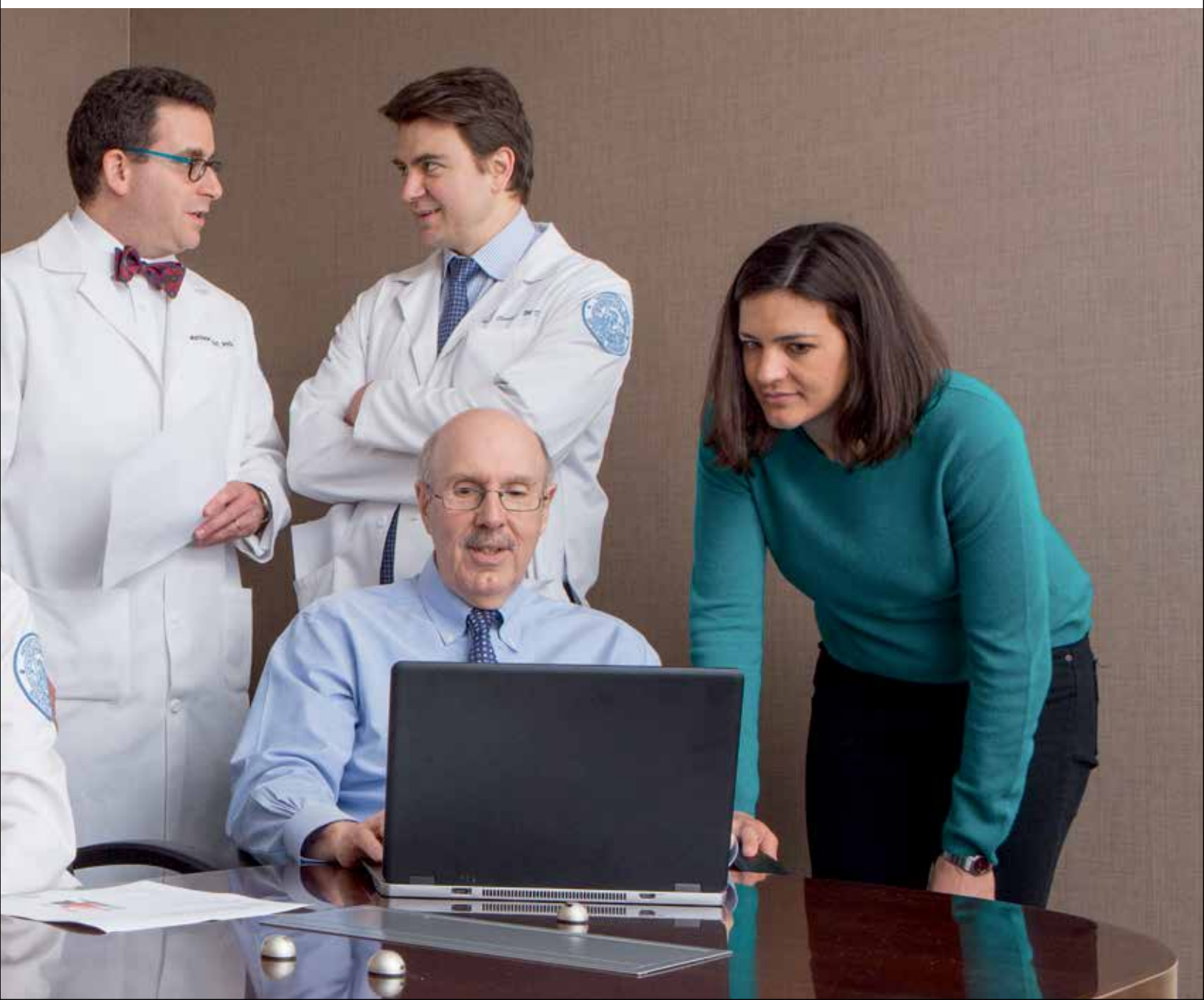
From left to right, back row: Drs. Alessandra Pernis; Miguel Otero; Matthew Koff, Associate Scientist, Department of Radiology and Imaging; and Peter Sculco.



Total knee replacement surgery often brings relief from pain and a return to favorite activities. Unfortunately, around 15 percent of patients nationwide are not fully satisfied after surgery, despite improvements in perioperative pain management, surgical technique and implant design. For around 4 percent of patients, the problem is arthrofibrosis, a disabling condition in which excessive scar tissue forms inside the joint, causing knee stiffness and pain, which may lead to a need for revision surgery. Arthrofibrosis is a particularly problematic diagnosis because currently we do not understand who is at risk, how to prevent it or how to best treat it. Some risk factors that have been associated with the condition include prior knee surgery; being female, African American or prone to keloids; and having diabetes.

HSS was awarded a three-year grant from HSS Trustee Marina Kellen French and the Anna-Maria and Stephen Kellen

Foundation to help initiate a study on arthrofibrosis. A multidisciplinary research team at HSS, in collaboration with Mayo Clinic, has begun to try to uncover why people develop arthrofibrosis—and how best to prevent and treat the condition. Our researchers will investigate factors that may contribute to the condition, including genetic variables that may predispose patients to an abnormal healing response with scar formation. “I strongly believe that this multidisciplinary effort between two premier medical institutions is the best way to solve one of the most vexing and complex problems facing knee replacement surgeons today,” says Peter Sculco, MD, Assistant Attending Orthopedic Surgeon and Clinical Director of the study. “Once we understand the biology and genetic basis for this condition, we may be able to reduce the rate of arthrofibrosis and improve the clinical outcomes of patients who require



revision surgery. The ultimate goal is to come up with a molecular marker for arthrofibrosis we could reliably use to identify at-risk patients prior to surgery and employ the best pharmacologic treatment to prevent its development.”

Scientists and clinicians from nearly every department at HSS—Orthopedic Surgery, Research, Biomechanics, Radiology and Imaging, and Pathology and Laboratory Medicine—are involved in the study. An Anesthesiology clinician who is investigating total knee replacement outcomes in a separate study is also collaborating with the team. Meghan Kirksey, MD, PhD, Assistant Attending Anesthesiologist, is researching clinical and biological predictors of arthrofibrosis and persistent pain in total knee replacement patients. Preliminary analysis from her study, conducted in collaboration with Miguel Otero, PhD, Assistant Scientist and Co-Director of the Precision Medicine Laboratory, shows that patients experienced a change in inflammatory markers after surgery. The study is nearing completion. Analysis of patients’ blood and tissue samples will aim to determine if their pre-surgical level of inflammation and/or the components and magnitude of their post-surgical inflammatory stress response are associated with the development of arthrofibrosis.

In the multidisciplinary project, two groups of total knee replacement patients will be studied. In the first, arthrofibrosis patients undergoing revision surgery will have joint tissue retrieved and analyzed. Tissue will be taken from a group of similar patients who are undergoing routine knee replacement surgery and don’t have the condition for comparison. They will be followed over time to see if they develop arthrofibrosis. Their blood and/or joint tissue will be tested at the time of surgery and again after surgery to understand how they responded, on a molecular level, to surgical stress. HSS researchers will follow these patients over time to determine whether the presence of any molecular markers accurately predicts the development of arthrofibrosis. So far, 20 patients have been enrolled in the study, and more are being recruited each day. The goal is to study about 150 patients in each group.

Patients from both groups who are scheduled for revision surgery will undergo MR imaging pre-operatively, and physicians will biopsy tissue from several locations in the knee at the time of surgery (some will be based on the imaging results). The tissue will be sent to Pathology for clinical evaluation, as well as to the Research Institute for molecular analyses. “We will determine whether there is a molecular basis for the patients’ dissatisfaction,” says Dr. Otero. HSS scientists will perform tissue analysis, including RNA

sequencing, to try to identify unique cellular and molecular “signatures” associated with the condition.

Our scientists are also investigating possible inflammatory pathways associated with arthrofibrosis. “After surgery, everyone heals a little differently,” says Alessandra Pernis, MD, Senior Scientist and Peter Jay Sharp Chair in Lupus Research. “Some people may be hyperresponsive and scar more than others, but it may be possible to modify the hyperresponsiveness.” Dr. Pernis is studying ROCK, an important molecule that controls immune function and plays a role in wound healing and fibrosis, in which tissue thickens and scars. “If a person is hyperresponsive, we may be able to prescribe a medication that could block the ROCK molecule, preventing or lessening the body’s response,” she says.

“We all have different backgrounds, but we’re working together to solve this problem.”

In addition to the patients’ tissue, their removed implants will be examined. Engineers in the Department of Biomechanics will study the implants to determine the degree of wear damage. “Everyone is so excited; we’re leaning forward in our chairs,” says Hollis G. Potter, MD, Chairman, Department of Radiology and Imaging and Coleman Chair in MRI Research. “We all have different backgrounds, but we’re working together to solve this problem.”

The data collected on study participants will become part of a patient registry, enabling the research team to correlate pre-operative imaging with surgical outcomes over time. The imaging data, for instance, could be used to help our scientists develop an MRI classification system, which could enable clinicians to predict which patients will develop arthrofibrosis—and the degree of scarring likely to occur. At the same time, the Hospital’s extensive archives, including tissue samples and clinical records of knee replacement patients, will be mined for clues to the condition. Taken together, the information should help HSS researchers connect the dots between a host of individual and environmental factors and disabling stiffness, with enormous benefits for patients.

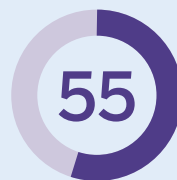
The study, which will likely take three to four years to complete, is expected to set the stage for investigating other factors that may lead to knee replacement dissatisfaction. “Given our patient volume and our expertise, we’re probably the best-positioned institution in the world to tackle these kinds of problems,” says Timothy Wright, PhD, FM Kirby Chair of Orthopedic Biomechanics.

IMPACT OF KNOWLEDGE

Our knowledge advantage is accelerating,
and its impact is broadening.

\$41M

record HSS research
budget in 2016



percentage of external research
funding received by HSS from the
National Institutes of Health and
other federal agencies in 2016

The average success rate of NIH research project grant
applications *by all institutions* was just 19 percent in 2016



112 invention submissions
at HSS in 2016

more than 2x the submissions in 2015

48 years ago, we designed and developed the
**first modern total knee
replacement, which is
now the global standard**



47 active HSS
research registries

180,000+ patients
enrolled

550 peer-reviewed papers
from registry research



793

HSS research papers
published in 2016



68%

increase in HSS
eAcademy®
membership between
2015 and 2016



11

consecutive years
of growth as an
accredited CME
provider



6.6M+

record number of
unique visitors to our
website in 2016

Louis A. Shapiro, President and Chief Executive Officer, and Dr. Todd J. Albert, Surgeon-in-Chief and Medical Director, discuss the Hospital's strategies for achieving sustainable world leadership in musculoskeletal health.

ACHIEVING SCALE

To achieve *sustainable world leadership* in musculoskeletal health, HSS is implementing a unique plan that amplifies impact through strategic collaborations, knowledge networks and care innovations.

Over many years, HSS has earned the privilege of independence but also a responsibility to meet the growing global need for superior quality musculoskeletal care. Healthcare professionals from all corners of the globe are aware of our unique expertise and want to apply it in their own practices. Membership in HSS eAcademy®—our digital platform for professional education programs—has increased by 68 percent in the last year to more than 15,000 members from 110 countries. In addition, we hosted more than 300 academic visitors from more than 40 countries in the last year. As physicians benefit from our educational programs, they are increasingly interested in gaining a

greater understanding of how we deliver excellence in patient care. Through HSS Global Ventures—our platform for advancing orthopedic care around the world—we are now working with international hospitals and healthcare systems to transfer knowledge, protocols and best practices. When hospitals meet certain standards, such as high-quality outcomes, they can become an HSS Global Alliance member or an HSS Center of Excellence. In the past year, we have also engaged in strategic collaborations through which we provide patient care and operational management. Through a collaboration with the leading Magnet hospital serving southwestern Connecticut,

HSS Orthopedics at Stamford Health introduced ambulatory surgery earlier this year and will provide inpatient surgery in November.

While the HSS opportunity is global, we know that a prerequisite is 'winning at home.' This involves improving access and convenience for consumers in metropolitan New York City. In September, we opened the HSS Manhattan Ambulatory Surgery Center, and we recently opened HSS Westchester, our largest outpatient center to date, in White Plains, NY. As the leader in musculoskeletal medicine, we seek to ensure that patients everywhere have access to the highest quality care.

Strategic Roadmap to 2020

Patient-Centered and Culture – Foundation for Current and Future Success



Patients | Research | Education | Culture

Getting the **right diagnosis**, from the comfort of home

When Joseph Leo, of Wilmington, NC, saw a local physician for the burning pain that was radiating down his right arm last August, he was shocked to learn that he needed surgery—immediately. Leo was diagnosed with cervical stenosis with myelopathy, which occurs when age-related changes or traumatic injury in the neck cause the spinal canal to narrow, putting pressure on the spinal cord and nerves. “My doctor told me I could become paralyzed if I were in an accident because there wasn’t much space between the neck bone and spine,” Leo recalls. “I went from being totally healthy to needing surgery the next day.”

Leo had heard about HSS’s expertise in musculoskeletal health, so he decided to visit the Hospital’s website. That’s where he discovered HSS eConsult, which enables patients to get a second opinion from HSS surgeons from the comfort of home.

HSS eConsult first launched in 2015 and has been used by more than 100 patients across the country.

After a simple online registration and upfront payment, HSS eConsult takes over. The service collects all relevant medical records and images, and an appropriate HSS expert reviews the file. “It couldn’t have been easier,” says Leo. “I gave HSS eConsult the names of my providers and the facilities where my scans were taken, and that was it. I liked the simplicity of it all.”

Within two weeks of submitting his request, Leo received a clearly written opinion from Han Jo Kim, MD, Assistant Attending Orthopedic Surgeon. Based on the second opinion, he decided to make an appointment. Dr. Kim concurred with the other physician’s diagnosis and the need for surgery, but he did not believe Leo needed his vertebrae fused and thought his recovery time could be cut down to two weeks. “That was a big relief, because the doctor in my home state said I would need three months to recover,” he says.

Getting the correct diagnosis and most appropriate treatment the first time is crucial, since “it can be more costly and dangerous to fix a procedure that should not have been done,” points out Todd J. Albert, MD, Surgeon-in-Chief and Medical

Dr. Han Jo Kim performs procedures to correct cervical stenosis (narrowing of the spinal canal, which puts pressure on the spinal cord and nerves) and myelopathy, in which a patient has difficulty walking due to spinal cord compression.





Joseph Leo's online second opinion led to an effective procedure—and a brief recovery.

Director. "HSS eConsult helps patients get the wisdom of our talented physicians when making medical decisions."

As a result of the second opinion, Leo decided to have surgery at HSS. Last October, he underwent a procedure called laminoplasty, in which the lamina—the part of the vertebrae that covers the back of the spinal cord—is rebuilt to a more open position, relieving pressure on the spinal cord and nerves. He

also had several foraminotomies, in which Dr. Kim created more space for the nerves to exit the spinal canal, removing pressure on the nerves. Just eight days later, Leo was able to stop taking pain medication. "At the six-week follow-up, Dr. Kim showed me images of the increased space between my neck bone and spine," says Leo, who is now pain-free and no longer experiences any burning discomfort in his arm. "Looking at them was a great relief. I couldn't have been happier with the process."

Bringing HSS-caliber care closer to patients' homes

When Charles Cornell, MD, performed an arthroscopic procedure at Stamford Health's Tully Health Center in Stamford, CT, in March, it marked the first HSS surgery ever done outside of New York. The procedure was a small step toward realizing what will be the premier center for musculoskeletal care in Connecticut. HSS Orthopedics at Stamford Health is a collaboration between HSS and Stamford Health, an independent Magnet hospital with multiple ambulatory locations in Fairfield County. Dr. Cornell, an Attending Orthopedic Surgeon at HSS, now chairs the newly created Department of Orthopedic Surgery at Stamford Health and serves as Medical Director of HSS Orthopedics at Stamford Health.

HSS has been providing local care to Connecticut residents through a Greenwich office and, in the past two years, at the HSS Outpatient Center at Chelsea Piers Connecticut and HSS Sports Rehab Provided by Stamford Health. Expanding our services to include surgery is the logical next step. "We get a large number of patients from northern New York and Connecticut, so it's critical that we provide access to HSS-caliber care closer to where patients live," says Jennifer Rentas, Vice President, Regional Markets.

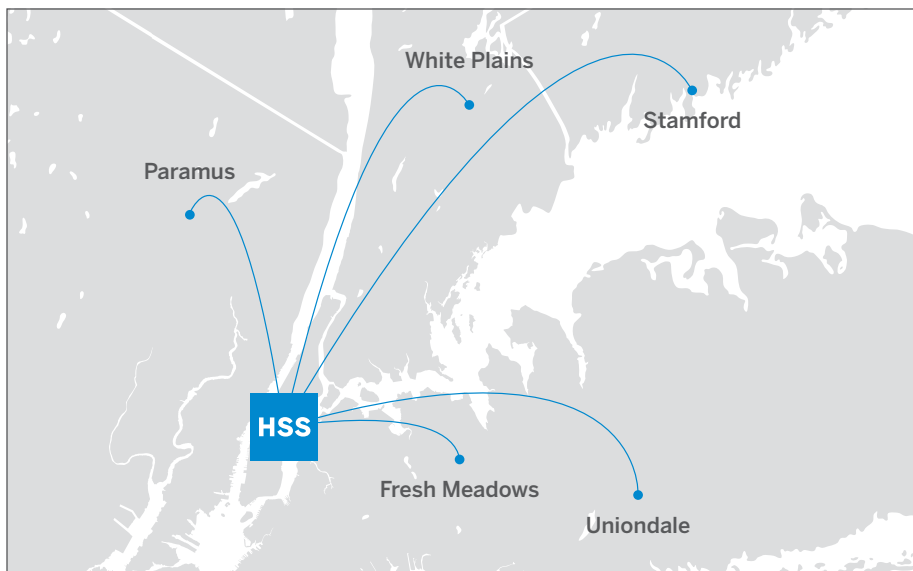
The collaboration, which was announced in February, is going "fantastically well," according to Dr. Cornell. Although the

agreement was signed last summer, planning has been in the works for several years. HSS and Stamford Health physicians compared their approaches to care and blended their cultures. "There were more than a dozen task forces with equal representation from both HSS and Stamford Hospital," says Jo A. Hannafin, MD, PhD, Attending Orthopedic Surgeon and Medical Director of the HSS Stamford Outpatient Center. "The nurses, surgical technicians and physician assistants who are working in the HSS Orthopedics at Tully operating rooms scrubbed together for eight weeks to learn best practices."

What makes the collaboration unique is that HSS is moving current HSS physicians into various roles at Stamford instead of hiring local physicians. "We want to bring our talent with us," says Dr. Cornell. "Over time, we intend to develop and absorb local talent. This approach guarantees our quality of care and ensures the HSS culture is here. We intend to build a service with quality that's second to none."

HSS is bringing its approach to care to Stamford Health. "It's multidisciplinary, and it puts the patient at the center of everything," says Dr. Cornell. "We've exported our policies, procedures and clinical pathways." HSS will also be conducting clinical research and performing data collection in Stamford.

A snapshot of our regional expansion



Currently, HSS physicians perform routine arthroscopic procedures, such as ACL reconstruction and rotator cuff repairs, at the HSS Orthopedics facility at Tully Health Center. In November, HSS Orthopedics at Stamford Health will expand to a dedicated fifth floor of the new Stamford Hospital building, where physicians will be able to perform complex procedures, such as joint replacements and spine surgery.

Stamford Health is just one part of the Hospital's geographic expansion plans. HSS recently opened a new outpatient center in White Plains, NY, which offers advanced imaging, physician services, physical therapy and sports performance. The Hospital is also evaluating opportunities for expansion to other locations, both nationally and abroad. "Patients travel from all over the world seeking HSS care," points out Justin Oppenheimer, Vice President, Strategy & Service Lines. "More than ever, healthcare providers and other strategic partners are asking us to bring our knowledge, medical staff and culture of excellence to their markets. It's part of our mission to share our expertise and provide access to our care."

While expansion in our core regional markets is our first priority, "HSS is in active discussions in multiple regions of the U.S. and internationally," says Oppenheimer. Regardless of where we expand, "it will be done in a thoughtful and strategic fashion." Depending on the model, new locations will benefit from HSS-caliber physicians, nurses and PTs; HSS training and protocols; the HSS patient experience; and HSS results.

Dr. Charles Cornell with Ellen Wolson, the first HSS patient to have surgery outside New York.



Advancing care, from China...

While participating in the HSS-China Orthopaedic Education Exchange program, Hongbo Tan, MD, Associate Attending Surgeon at Kunming General Hospital in China, marveled at the role robotics can play in orthopedic surgery. "I haven't had the opportunity to observe such procedures until now," he says. "Robotic surgery is incredibly precise, which can reduce errors."

Dr. Tan was one of 11 Chinese surgeons who spent between four and eight weeks observing HSS surgeons in their offices and the operating room and attending weekly educational conferences under the program's auspices in 2016. "Robotics and computer navigation are just starting to be introduced in China," says Seth Jerabek, MD, Assistant Attending Orthopedic Surgeon, who has been involved in the program for four years. "Many of our visiting surgeons haven't seen the advanced technologies we have at HSS. It is fun and rewarding to be able to share these with them."

Dr. Jerabek served as Dr. Tan's mentor during his stay. "It's an honor to host our visiting surgeons," says Dr. Jerabek. "They are very dedicated to their education, as they take time off from their practices and travel halfway around the world to learn how we approach orthopedic surgery at HSS."

In addition to structured observation, the Exchange—which is directed by Mathias P. Bostrom, MD, Attending Orthopedic

Surgeon, Academic Director of Orthopedic Surgery and Vice Chair of Education and Academic Affairs—provides education through live videoconferencing and annual symposia held in China. HSS surgeons conduct Grand Rounds through videoconferencing technology and travel to China to participate in symposia. "It's our responsibility to share what we've learned," says Dr. Jerabek. "I would like to think we are having an impact on healthcare in China."

Collaboration with the Chinese surgeons involved in the Exchange has extended beyond the program's confines. "Several surgeons have sent me interesting cases, including X-rays and videos, and asked, 'How would you handle this?'" says Dr. Jerabek, who recently presented at a meeting of the Chinese Association of Orthopaedic Surgeons. "I learn a

"It's our responsibility to share what we've learned. I would like to think we are having an impact on healthcare in China."

lot from our visiting surgeons as well. It's interesting to see how surgeons from another culture approach healthcare and tackle challenging cases."

More trips to China are planned, including opportunities to teach advanced revision techniques for hip and knee replacement. "One of HSS's strengths is working with other cultures as well as other countries in order to advance orthopedic education," says Dr. Jerabek.

Dr. Tan is grateful for the opportunity to participate in the Exchange program. "It's been an amazing journey," he says. "When I get home, I will recommend that excellent surgeons in China apply."

Dr. Seth Jerabek reviews a patient's scans with Dr. Hongbo Tan.





...to Greece

Dr. Michael B. Cross, Assistant Attending Orthopedic Surgeon, teaches Greek orthopedic surgeons the latest techniques and innovations in orthopedic surgery.

HSS hosts symposia in New York City, such as the HSS Stavros Niarchos Foundation Orthopaedic Seminar Program. The program, which is geared toward Greek orthopedic surgeons, focuses on the latest techniques and innovations in complex hip and knee reconstruction. Feedback from attendees suggests that the program is already making a difference for the physicians and their patients in Greece.

“When I registered for the 2016 HSS Stavros Niarchos Foundation seminar, I wanted to learn from the best. Today, two months after my visit to HSS, I can truly say that it was very beneficial for me. I have already treated two knee periprosthetic fractures and one hip periprosthetic fracture, and what I learned at HSS helped me better plan and execute the procedures.”

—Nikolaos Sargiotis, MD

“It is my belief that by surgically managing complex cases such as periprosthetic fractures in my regional hospital, we will limit the number of patients visiting bigger and [more] specialized hospitals for further treatment, improving the quality of musculoskeletal care for patients in western Macedonia.”

—Dimitrios Giotis, MD, PhD

“I can honestly admit that the medical staff was the prototype of the orthopedic surgeon I want to become. I came away from the seminar feeling so confident.”

—Dimosthenis Tsitouras, MD

“It is obvious that applying certain principles concerning adult reconstructive surgery in our everyday practice can result in a lower reoperation rate with a lower cost to our health system. Therefore, the seminar is appreciated by our patients in Greece.”

—Thomas Sarlikiotis, MD

“I used the information [I learned] about blood loss and post-operative management of pain in my patients, and the results were very good. I am certain that the knowledge from such a prestigious course will be passed on to surgeons who are routinely asked to treat patients with complications after primary arthroplasty and periprosthetic fractures. I will take every opportunity to pass on my experience to people who are keen to learn.”

—Kosmas Petras, MD

HSS IMPACT IN MORE THAN 120 COUNTRIES

■ HSS eAcademy® Members

There are more than 15,000 members—68 percent more than there were in 2015—from 110 countries.

■ International Patients

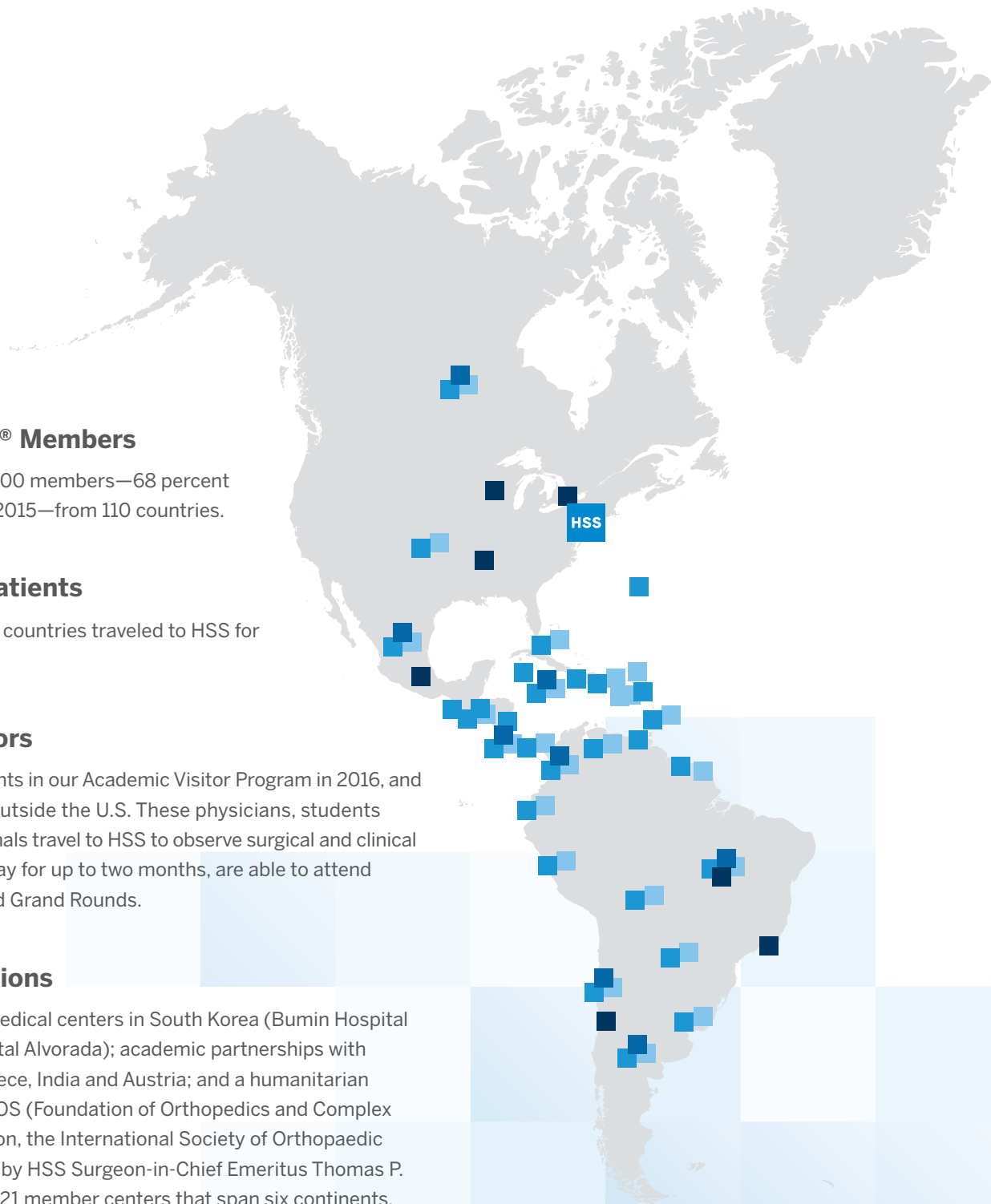
In 2016, patients from 76 countries traveled to HSS for hospital services.

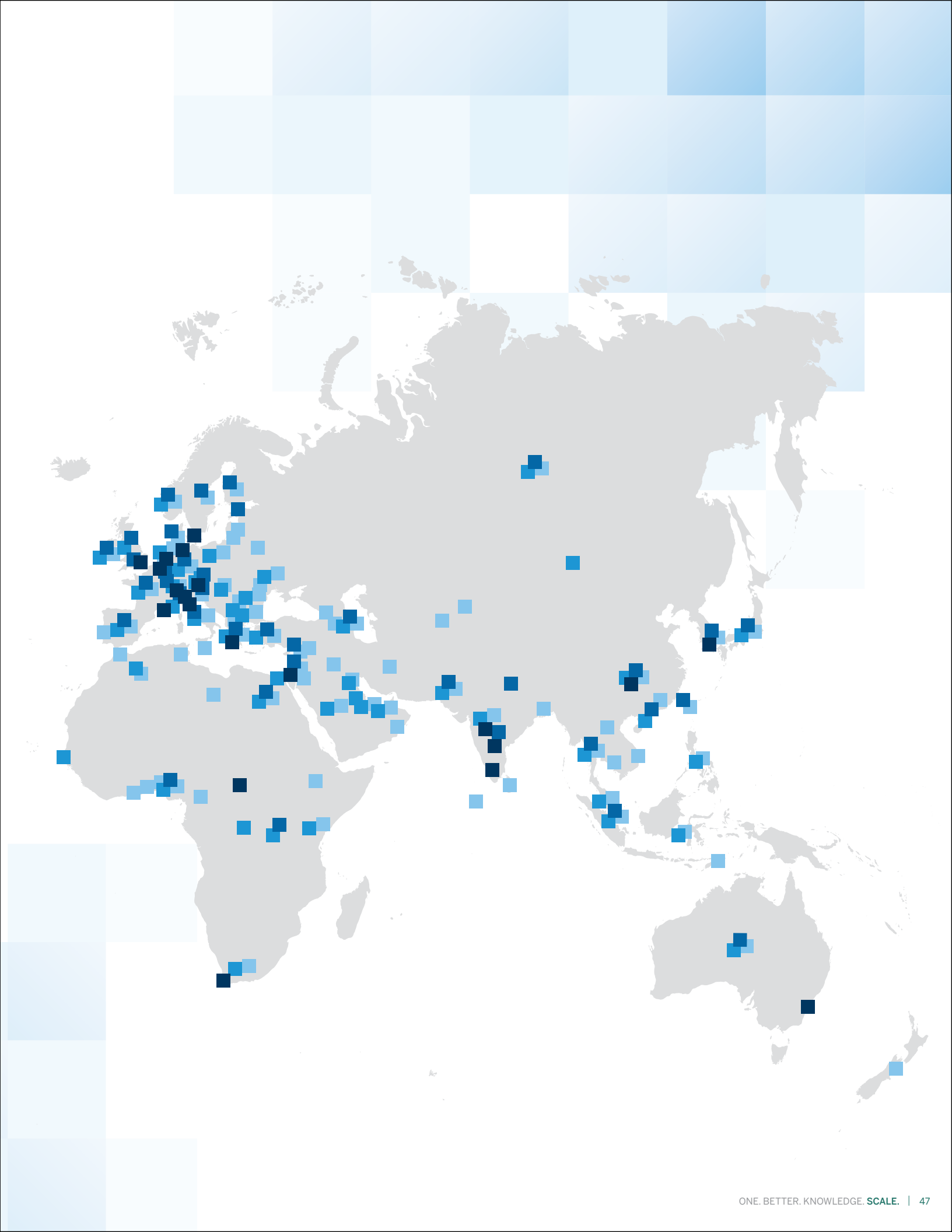
■ Academic Visitors

There were 427 participants in our Academic Visitor Program in 2016, and 332 of them were from outside the U.S. These physicians, students and healthcare professionals travel to HSS to observe surgical and clinical care. Visitors, who can stay for up to two months, are able to attend lectures, conferences and Grand Rounds.

■ HSS Collaborations

HSS has alliances with medical centers in South Korea (Bumin Hospital Group) and Brazil (Hospital Alvorada); academic partnerships with institutions in China, Greece, India and Austria; and a humanitarian collaboration called FOCOS (Foundation of Orthopedics and Complex Spine) in Africa. In addition, the International Society of Orthopaedic Centers (ISOC), founded by HSS Surgeon-in-Chief Emeritus Thomas P. Sculco, MD, in 2006, has 21 member centers that span six continents. The organization's mission is to exchange ideas and best practices and advance orthopedic care around the world.





NYC

**World leader in
Orthopedics &
Rheumatology**

HSS

**HOSPITAL FOR
SPECIAL SURGERY**

hss.edu



Table of Contents

Leadership Report	50
Financial Information	55
Philanthropic Highlights	56
Professional Staff	58
Management & Volunteers	65
Leadership Councils	69
Planned Giving	70
Benefactors	73
Officers & Board Members	82
HSS Notice of Nondiscrimination and Accessibility	68

Leadership Report

Unleashing New Possibilities Through Transformation

The only constant in progressive organizations is change. Without leading change from within, organizations will be subject to change from the outside. Being in control of our destiny is a defining characteristic of HSS. One hundred fifty-four years after we changed the concept of what a hospital could be, HSS continues evolving to show what a hospital *should* be, outpacing industry by initiating change that will accelerate our own growth and elevate our impact globally.

“HSS” is *because* of Hospital for Special Surgery, but it is also much *more* than the Hospital. We are an enterprise that not only treats patients but also teaches, researches, innovates, enables companies to increase performance, serves the community and leads in all aspects of musculoskeletal health around the world. We make a positive impact without boundaries, either those defined by the services we deliver or the geographies we serve.

As the healthcare marketplace changes, we are transforming our enterprise informed by three principles: *better*, *knowledge* and *scale*. They comprise the core of our strategic plan, which establishes the foundation for our sustained leadership in musculoskeletal health. We are relentlessly focused on delivering better quality every day; advancing and accelerating expertise across the field; and extending our leadership across markets, product categories and related services. At a time of record consolidation among hospitals, HSS is among a very few capable of *earning* growth through exceptional value. It’s a historic moment in the history of HSS and healthcare, and we are moving deliberately on our burning platform of opportunity.

We are at the juncture where a distinguished past is liberating an expansively impactful future.

The relentless pursuit of “better”

Although we are known for our unmatched care and outcomes, we are never content to rest on our laurels. Every day, we are committed to getting better—regardless of the level of performance we have achieved. That commitment will shape the future of musculoskeletal

health, just as it has in the past. Over the last 154 years, we have served at least six generations of patients—some throughout their lifetimes—and pioneered many innovations that have advanced care and the field of musculoskeletal medicine. In 1977, we created what has become the largest orthopedic implant retrieval program from which we harvest unmatched quality improvement innovations by evaluating the design and material differences of more than 25,000 retrieved total joint implants. Just in the last four decades, our experts have been awarded more than 140 patents for new technologies and submitted nearly 500 invention disclosures.

In addition to developing cutting-edge treatments, we are streamlining and improving the care we deliver via the effective and appropriate use of technology. In 2016, we introduced Epic, the integrated electronic medical record. It has quickly become the foundation of our information-based efforts. Our Epic unified patient record enables us to view patient data over time and longitudinally across multiple settings. This seamless integration of data is enabling us to perform analyses to improve clinical practice, which will help fuel our growth.

In the future, Epic will allow us to track how well our treatments are working—and ultimately deliver even higher value care. With our Patient Reported Outcome Measures (PROMs) initiative, we are surveying all surgical patients about pain, function and quality of life pre- and post-surgery to assess progress and storing the information in Epic. In 2018, we will extend this strategic initiative to the rest of our patient population.

Technology is also playing a role in our personalized health management initiative. We are creating a virtual/digital blueprint on how care is delivered at HSS and will use this tool to reach as much of the population in the United States, and potentially abroad, as possible so they can benefit from the knowledge created at HSS. While more work needs to be completed, backed by the HSS brand and all that it represents, we have the opportunity to impact how patients with back pain, hip/knee osteoarthritis and other musculoskeletal conditions are being treated. This digital tool will help us stay in touch with patients over the course of



From left to right: Lionel Ivashkiv, MD, Chief Scientific Officer; Kendrick R. Wilson III, Chair; Louis A. Shapiro, President and CEO; Todd J. Albert, MD, Surgeon-in-Chief and Medical Director; and Mary K. Crow, MD, Physician-in-Chief

the care journey. The ultimate goal is to improve access to the best care, improve the caliber of care patients are receiving and, ultimately, improve outcomes. This is a value-based approach.

Some of our efforts to improve the patient experience and care delivery are decidedly nontechnical. We have hired more than 250 Advanced Practice Providers (APPs), including nurse practitioners, physician assistants and nurse anesthetists, to provide evidence-based,

personalized treatment. To promote their roles at HSS and in the medical community, we launched the Center for Advanced Practice Nursing. The Center, which is one of only about a dozen across the country, is expected to serve as a model for other hospitals.

Our success in delivering higher quality, more efficient care is reflected in numerous accolades. As this publication was being finalized, we received word of the very latest *U.S. News & World Report* rankings: #1 in the nation

for Orthopedics for the eighth consecutive year and #3 for Rheumatology. In addition, for the first time, Pediatric Orthopedics was also ranked. We are proud Pediatric Orthopedics was honored to debut as best in Manhattan and #28 nationally. We also received six top achievements from Healthgrades® in 2017: America's 100 Best Hospitals for Spine Surgery; Excellence Awards in Joint Replacement and Spine Surgery; and 5-Star Ratings for Total Hip Replacement, Back Surgery and Spinal Fusion Surgery. In 2016, we became the first hospital in New York State to be awarded a fourth consecutive Magnet designation—the highest award for nursing excellence—by the American Nurses Credentialing Center.

These rankings and recognitions validate and amplify the consistent quality of HSS outcomes, creating high demand for our services. In 2016, patients traveled from 76 countries because they determined that HSS was the *one place in the world* where their possibilities were greatest. We provided nearly 400,000 outpatient visits and more than 30,000 surgeries, and our patients were overwhelmingly satisfied: for nine years, the Hospital has scored in the 99th percentile—the highest possible rank—on “Likelihood to Recommend,” a key indicator of customer satisfaction, compared to other Magnet hospitals in the Press Ganey database. We also received the 2013–2016 Press Ganey Guardian of Excellence Award®—a nationally recognized symbol of achievement in patient experience—for the fourth consecutive year. More recently, we received the Healthgrades 2017 Outstanding Patient Experience Award™ for the third consecutive year. HSS's Net Promoter Score (NPS)—a measure of customer satisfaction and loyalty—is 92 percent.

Harnessing knowledge to grow impact

Leading musculoskeletal medicine into the future requires the right resources, such as cutting-edge laboratory equipment and spaces where scientists can collaborate. In 2016, we set the stage for the next generation of discovery with the opening of the new HSS Research Institute at 515 East 71st Street. This new facility houses HSS basic science research laboratories, which work to discover new treatments and even cures for the types of problems that patients come to see us for from around the globe.

Our clinicians are at the forefront of innovations that often become the standard of care in orthopedics. Case in point: Nearly a decade ago, an HSS surgeon received a patent for a groundbreaking surgical technique and instrumentation for performing minimally invasive knee replacement. Today, less invasive surgery for hip or knee replacement is considered state of the art, given the advantages of smaller incisions and a faster recovery.

HSS is also leading the way in robotic surgery. Physicians travel from across the globe to observe our use of the technology, which helps reduce errors. Our Computer Assisted Surgery Center conducts pioneering research on robotics and focuses on integrating it with orthopedic procedures.

Our surgeons are often among the first to perform cutting-edge procedures. That was the case recently when an HSS surgeon operated on a patient using osseointegration, a new procedure that may revolutionize amputation surgery. Instead of using a socket to connect the prosthesis to a patient's residual limb, the physician attaches the prosthesis to the person's remaining bone. The procedure is more comfortable for the patient and improves function. It's the first significant change in amputation surgery since the Civil War, and it may become the global standard for limb replacement.

HSS research is continuously advancing musculoskeletal care. Several of our clinician-scientists are investigating whether stem cells—which develop into many different cell types—can promote healing in patients with osteoarthritis and damaged tendons.

Our scientists are at the forefront of precision medicine in musculoskeletal health. We established the Derfner Foundation Precision Medicine Laboratory as part of our Precision Medicine Initiative, which aims to identify molecules responsible for musculoskeletal disease and develop new treatments targeting them. In addition, scientists in the David Z. Rosensweig Genomics Research Center are investigating cells and genes to understand genetic and environmental contributions to disease. The hope is that

genomics research will lead to more personalized treatments for musculoskeletal conditions.

By the end of 2016, our total federal research grants were valued at \$43.2 million. A National Institutes of Health (NIH) grant is enabling one of our scientists to investigate epigenetic factors that may play a role in the development and progression of osteoarthritis. Another HSS scientist received an NIH grant to study new ways to prevent and treat bone and joint destruction in diseases like arthritis, osteolysis (implant loosening) and osteoporosis.

Our esteemed researchers have unparalleled expertise, which we're leveraging to enhance our influence around the world. Our Global Innovation Institute is systematically cultivating and harnessing intellectual property, turning ideas into products and services that will create value for patients without requiring them to come to HSS for care. In 2016, there were 112 invention submissions at HSS. Several spinout companies and partnerships have formed to commercialize technologies and therapies developed by HSS scientists and clinicians. One example is RGD Technologies, the creator of Soleforce™, a device for patients recovering from lower extremity injuries and procedures (see the story on page 27).

In addition to enhancing patient care around the world, our unique knowledge is benefiting the local community—and improving lives. For instance, the HSS Sports Safety Program provides workshops for coaches, parents and young athletes on the best ways to reduce the risk of anterior cruciate ligament (ACL) injuries. To help address the epidemic of opioid abuse, the HSS Pain & Stress Management series teaches people to manage their pain in healthy ways, such as through meditation, yoga and deep relaxation techniques. Other programs are geared toward bone health and lupus and rheumatoid arthritis patients, as well as older adults.

Meeting a global need

As people in all corners of the world lead longer and more active lives, musculoskeletal wellness is becoming even more important. So, too, is HSS's unique role. Our commitment to patient care,

research, innovation and education is extending our reach and impact internationally through new musculoskeletal products and services. Ultimately, this will enable people and corporations across the globe to function at their highest possible level more reliably and efficiently.

In 2016, a record number of medical professionals across five continents turned to HSS to improve their knowledge, and our care delivery system continued to expand. Today, more than 15,000 medical professionals in 110 countries choose HSS eAcademy® for continuing medical education (CME). We anticipate our global impact will further amplify with the recent inauguration of an editorial collaboration with Medscape, the leading provider of clinical information and resources to physicians and healthcare professionals.

To make our care more accessible to patients and ensure our success in the tristate area, we are continuing our main campus and regional market development. In 2016, the third and fourth floors over 70th Street were extended, creating room for three new inpatient ORs. We are also converting one of our historical campus buildings into a state-of-the-art ambulatory center for some of our world-leading centers of excellence.

We are also optimizing our care delivery by increasing access to ambulatory procedures. In September, we opened the Ambulatory Surgery Center (ASC) near our main campus. The Center, which focuses on hand, foot and ankle, and sports medicine procedures, represents an innovative model of care. The Hospital and HSS physicians are partnering to collaborate and pursue initiatives that provide strategic and financial value to HSS.

Outside New York City, we are strengthening our position in core markets, as well as new areas. In the past year, we introduced the premier musculoskeletal care center in Connecticut, a leap forward in our collaboration with Stamford Health, a major independent Magnet hospital. In November, HSS Orthopedics at Stamford Health will add a dedicated inpatient surgery center to complement the ambulatory surgery center opened in February and the Sports Rehab facility

opened in 2015. As of this writing, construction of the inpatient surgery center is nearing completion, designed to HSS's unique specifications on the dedicated fifth floor of Stamford Health's spectacular new, \$450-million main Hospital building. The collaboration now extends across the entire Department of Orthopedics at Stamford Health, which is adopting HSS protocols and service standards. The HSS Stamford Outpatient Center complements the collaboration with access to care important to that region.

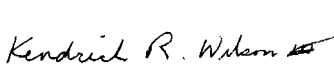
New Jersey and suburban New York residents are also benefiting from our growth. We recently expanded the HSS Paramus Outpatient Center in New Jersey to include an MRI facility and full suite of world-class rehabilitation services. This fall, we opened HSS Westchester, our most expansive outpatient center to date, in White Plains, NY. We are also exploring opportunities for partnering with healthcare organizations outside the tristate area that share our values and are committed to improving musculoskeletal care in their communities.

Increasing our global influence is another priority. We work with international hospitals and healthcare systems in several different

ways—in an advisory role, such as our partnerships with hospitals in Brazil and South Korea; by creating networks of orthopedic hospitals; and through business ventures. We are continuing to expand the HSS Global Orthopedic Alliance, a global network of hospitals that achieves high-quality standards in education, research and clinical care. If an Alliance member meets certain standards in quality and care delivery, as well as educational programming and clinical pathways, it can become an "HSS Center of Excellence." This designation can also be achieved through an HSS business venture, which may involve co-owning a hospital, managing an institution's orthopedic services, or helping to build a hospital. HSS is currently exploring relationships with institutions on four continents. HSS Global Ventures is our platform for extending our brand and advancing orthopedic care around the world.

Continuing to build on success

2016 was a successful year for HSS. We are pleased with the results and with the new possibilities being created through our focus on continuous improvement, sharing our knowledge, and growing our impact.



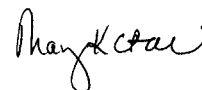
Kendrick R. Wilson III
Chair



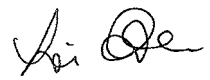
Louis A. Shapiro
President and CEO



Todd J. Albert, MD
Surgeon-in-Chief
and Medical Director



Mary K. Crow, MD
Physician-in-Chief



Lionel B. Ivashkiv, MD
Chief Scientific Officer

Financial Information ⁽¹⁾⁽²⁾

Hospital for Special Surgery and Affiliated Companies

Statement of Income^(3, 4)

(In Thousands)	Year Ended	
	2016	2015
Hospital for Special Surgery		
Total Revenue ⁽⁵⁾⁽⁶⁾	\$ 1,082,338	\$ 1,028,822
Total Expenses ⁽⁷⁾	1,030,823	943,579
Operating Income from Hospital for Special Surgery	\$ 51,515	\$ 85,243
Affiliated Companies		
Total Revenue ⁽⁷⁾	\$ 71,313	\$ 68,152
Total Expenses ⁽⁵⁾	66,396	63,541
Operating Income from Affiliated Companies	\$ 4,917	\$ 4,611
Operating Income for Hospital for Special Surgery and Affiliated Companies	\$ 56,432	\$ 89,854

Statement of Financial Position

(In Thousands)	December 31,	
	2016	2015
Assets		
Current Assets (Excluding Investments)	\$ 298,850	\$ 271,099
Investments ⁽⁸⁾		
Current	578,469	558,437
Long Term	126,224	117,128
Assets Limited as to Use	69,019	87,466
Property, Plant and Equipment - Net	615,508	568,249
Other Non-Current Assets	115,453	102,188
Total Assets	\$ 1,803,523	\$ 1,704,567
Liabilities and Net Assets		
Current Liabilities	\$ 347,427	\$ 326,903
Long Term Debt	266,755	301,553
Other Non-Current Liabilities	255,493	220,594
Total Liabilities	869,675	849,050
Net Assets	933,848	855,517
Total Liabilities and Net Assets	\$ 1,803,523	\$ 1,704,567

⁽¹⁾ Includes activities relating to Hospital for Special Surgery and its affiliates (Hospital for Special Surgery Fund, Inc., HSS Properties Corporation, HSS Horizons, Inc., HSS Ventures, Inc. and Medical Indemnity Assurance Company, Ltd.).

⁽²⁾ Complete Audited Financial Statements for both Hospital for Special Surgery and affiliates are available upon request from the HSS Development department at 212.606.1196.

⁽³⁾ Excludes \$27.0 million and \$33.3 million of restricted philanthropic contributions in 2016 and 2015, respectively.

⁽⁴⁾ Excludes non-operating portion of changes in unrealized gains and losses on investments.

⁽⁵⁾ Includes \$1.3 million of transactions between affiliates that are eliminated in consolidation in 2016 and 2015.

⁽⁶⁾ Includes distributions of \$1.0 million and \$6.7 million the Hospital received as a bequest from a Trust in 2016 and 2015, respectively.

⁽⁷⁾ Includes \$59.6 million and \$58.2 million of transactions between affiliates that are eliminated in consolidation in 2016 and 2015, respectively.

⁽⁸⁾ Hospital for Special Surgery is the beneficiary in perpetuity of income from an outside trust. The fair value of investments in the trust are not included above and were \$35.7 million and \$34.7 million at December 31, 2016 and 2015, respectively.

Philanthropic Highlights

Hospital for Special Surgery is deeply grateful for the extraordinary generosity of thousands of individuals, foundations and corporations whose support in 2016 helped to advance the Hospital's mission to improve the mobility and quality of life for all patients with musculoskeletal disease. Thanks to the exceptional commitment of friends and grateful patients, HSS raised over \$34.6 million, positioning us for continued growth and securing our standing as the world's foremost center of excellence in musculoskeletal medicine. Recognized as a "High Performer" for the third consecutive year by the Association for Healthcare Philanthropy for exemplary performance in healthcare fundraising, HSS takes great pride in the trust our donors place in our unwavering commitment to deliver the highest caliber of care to our patients.

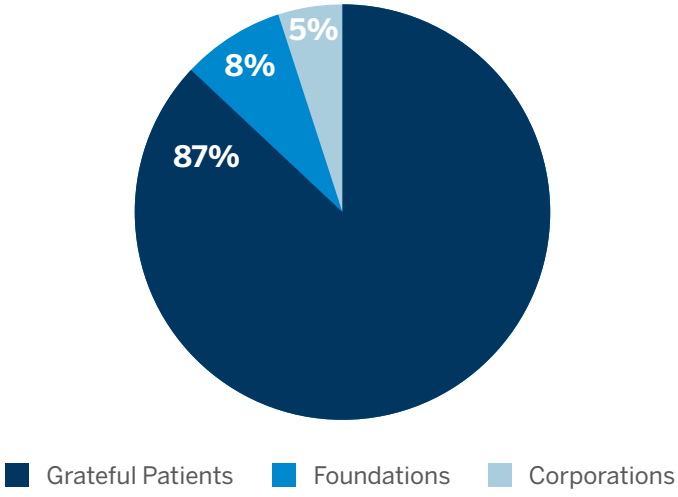
Total Philanthropic Giving

In 2016, more than 5,300 donors contributed over \$34.6 million to HSS. Grateful patients—who give individually, through their family foundations or bequests—continue to provide the greatest share of philanthropic support. They accounted for 87 percent of the funds contributed in 2016.

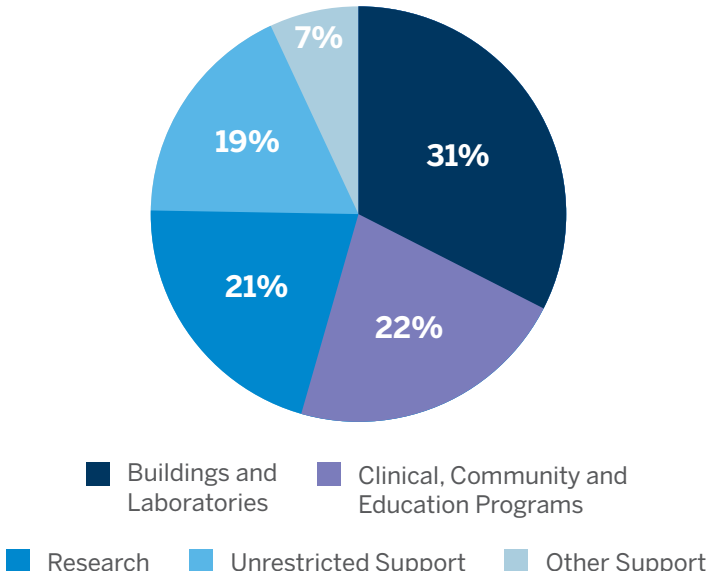
Nearly one-third of the funds raised in 2016 supported the growth and enhancement of the Hospital's buildings and laboratories. This included a \$5 million gift from The Derfner Foundation and its trustee Jay Lieberman to support the creation of the Pavilion and name the second floor Imaging Center. Dedicated to serving the growing number of patients seeking ambulatory care at HSS, the Pavilion complements the recent completion of a new state-of-the-art research building devoted to basic science. The expansion of our clinical and research facilities is instrumental to our efforts to advance evidence-based medicine in orthopedics, rheumatology and related diseases and deliver world-class medical care.

Seven gifts of \$1 million or more are making it possible for HSS to attain even higher levels of excellence for the benefit of patients. HSS received such contributions from Barbara and Todd Albert, MD, The Charina Endowment Fund, Warren and Allison Kanders, Marina Kellen French, Robert and Gillian Steel, Terence and Paula O'Toole and an anonymous benefactor. We are deeply grateful for their exceptional support.

2016 Giving by Source



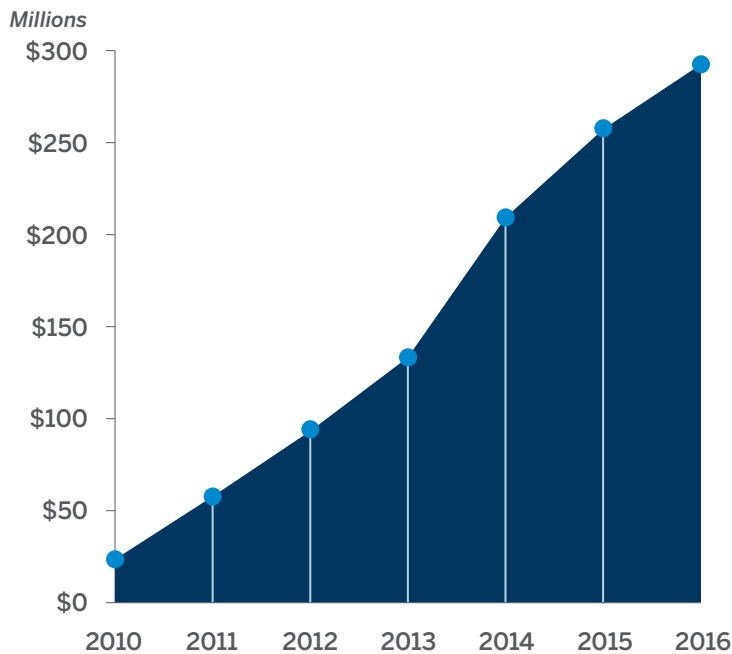
Areas Supported by 2016 Donations



Your Life, Our Mission Campaign—Our Commitment to Improving Patients’ Lives

The Hospital’s *Your Life, Our Mission* Campaign is raising important funds to expand and enhance our clinical facilities to meet growing demand; advance research that drives breakthrough cures and treatments; and build endowment to firmly secure the institution’s future. Under the leadership of Campaign Co-Chairs Michael P. Esposito and Jonathan Sobel, HSS has raised more than \$294 million toward its \$300 million goal. Central to this ongoing achievement are the thousands of generous donors who share our vision for the future of the Hospital. We are profoundly grateful for our friends and supporters whose generosity is helping to strengthen our position as the leader in the fight against musculoskeletal disease.

Your Life, Our Mission Campaign Progress



HSS Annual Benefit Celebrations

The HSS Foundation raised over \$3.3 million through the 33rd Annual Tribute Dinner in 2016; these vital funds enable HSS to uphold its promise to provide an unparalleled level of expert and compassionate care to all patients. The event honored Aldo Papone, Senior Advisor to American Express Company, dedicated member of the HSS Board

of Trustees and Board Chairman Emeritus, and Chitranjan S. Ranawat, MD, Attending Orthopedic Surgeon. Dr. Ranawat received the Lifetime Achievement Award in recognition of his innovations in joint replacement, as well as his commitment to mentoring the next generation of physicians in the field. Chaired by Trustee Ellen Wright with Dinner Co-Chairs and Trustees Kathryn Chenault and Alan MacDonald, the Tribute Dinner welcomed nearly 1,000 special friends of HSS.

Thanks to the tireless efforts of Chairperson Barbara Albert and Co-Chairs Anne Altchek, Carol Lyden and Ann Roberts, the HSS Autumn Benefit raised nearly \$1 million in support of medical education to advance the Hospital’s commitment to training the next generation of leaders in musculoskeletal medicine. Honoring “Excellence in Medical Education,” HSS paid tribute to three physicians chosen by the graduating residents for their commitment to mentoring and training future practitioners and leaders: Joseph Lane, MD, received the Philip D. Wilson, Jr., MD, Teaching Award; Anne Kelly, MD, received the Nancy Kane Bischoff Mentor Award; and Elan Goldwyn, MD, received The Richard S. Laskin, MD, Young Attending Award.

In celebration of a decade of accomplishments in pediatric care and research at HSS, the 10th Anniversary Benefit for Pediatrics raised over \$1.1 million—a record-breaking amount in a milestone year. Co-Chairs Monica A. Keany, Trustee; Kate Doerge, Advisor; and David M. Scher, MD, brought together 850 guests for the sold-out Benefit. Funds raised help HSS to continue providing the best care to all the children we serve.

Annual Fund

The Annual Fund is an essential source of strength for HSS. It provides unrestricted support that enables the Hospital to advance its mission of clinical care, research, education and community outreach. In 2016, unrestricted gifts from trustees, advisors and grateful patient donors; legacy gifts from Wilson Society members; and a successful Annual Tribute Dinner enabled HSS to raise more than \$6.7 million in general unrestricted funds. This recurring source of support represents a high level of loyalty and gratitude from thousands of donors and is critical to solidifying the Hospital’s global leadership in musculoskeletal medicine.

Professional Staff

April 1, 2017

Medical Board

Chairman

Todd J. Albert, MD

Secretary

Stavros G. Memtsoudis, MD

Board Members

Todd J. Albert, MD

(Surgeon-in-Chief
and Medical Director)

Michael M. Alexiades, MD

Mathias P. Bostrom, MD

Mary K. Crow, MD

(Physician-in-Chief)

Aaron Daluiski, MD

Theodore R. Fields, MD

Stephanie Goldberg, MS, RN, CNA

Lisa A. Goldstein, MPS

David L. Helfet, MD

Lionel B. Ivashkiv, MD

Michael J. Klein, MD

Irene Koch, Esq.

Dale J. Lange, MD

Gregory A. Liguori, MD

Stavros G. Memtsoudis, MD

Michael L. Parks, MD

Hollis G. Potter, MD

Joel M. Press, MD

Laura Robbins, DSW

Linda A. Russell, MD

Louis A. Shapiro

(President and CEO)

Ellen Wright

(Trustee)

Medical Staff

Surgeon-in-Chief and Medical Director

Todd J. Albert, MD

Surgeons-in-Chief Emeriti

Thomas P. Sculco, MD

Russell F. Warren, MD

Andrew J. Weiland, MD

Executive Assistant to Surgeon-in-Chief

Michael L. Parks, MD

Department of Orthopedic Surgery

Clinical Director of Orthopedic Surgery

Michael L. Parks, MD

Academic Director of Orthopedic Surgery and Vice Chair of Education and Academic Affairs

Mathias P. Bostrom, MD

Orthopedic Surgeons Emeriti

Stanley E. Asnis, MD

Oheneba Boachie-Adjei, MD

Walther H. Bohne, MD

Stephen W. Burke, MD

Edward V. Craig, MD, MPH

Michael J. Errico, MD

Allan E. Inglis, MD

Lewis B. Lane, MD

David B. Levine, MD

Peter J. Marchisello, MD

Richard R. McCormack, Jr., MD

Attending Orthopedic Surgeons

Todd J. Albert, MD

Edward A. Athanasian, MD

David W. Altchek, MD

Mathias P. Bostrom, MD

Frank P. Cammisa, Jr., MD

Frank A. Cordasco, MD

Charles N. Cornell, MD

Jonathan T. Deland, MD

David M. Dines, MD

Mark P. Figgie, MD

Federico P. Girardi, MD

Alejandro González Della Valle, MD

Daniel W. Green, MD

Steven B. Haas, MD

Jo A. Hannafin, MD, PhD

John H. Healey, MD

David L. Helfet, MD

Bryan T. Kelly, MD

Joseph M. Lane, MD

John P. Lyden, MD

Robert G. Marx, MD

Stephen J. O'Brien, MD

Paul M. Pellicci, MD

Chitranjan S. Ranawat, MD

Bernard A. Rawlins, MD

Scott A. Rodeo, MD

S. Robert Rozbruch, MD

Eduardo A. Salvati, MD

Frank J. Schwab, MD

Thomas P. Sculco, MD

Russell F. Warren, MD

Andrew J. Weiland, MD

Geoffrey H. Westrich, MD

Thomas L. Wickiewicz, MD

Roger F. Widmann, MD

Russell E. Windsor, MD

Scott W. Wolfe, MD

Associate Attending Orthopedic Surgeons

Michael M. Alexiades, MD

Answorth A. Allen, MD

John S. Blanco, MD

Friedrich Boettner, MD

Robert L. Buly, MD

Michelle G. Carlson, MD

Struan H. Coleman, MD

Aaron A. Daluiski, MD

Joshua S. Dines, MD

Shevaun M. Doyle, MD

Scott J. Ellis, MD

James C. Farmer, MD

Stephen Fealy, MD

Austin T. Fragomen, MD

Robert N. Hotchkiss, MD

Russel C. Huang, MD

Anne M. Kelly, MD

Steve K. Lee, MD

David S. Levine, MD

Dean G. Lorch, MD

John D. MacGillivray, MD

David J. Mayman, MD

Patrick F. O'Leary, MD

Martin J. O'Malley, MD

Douglas E. Padgett, MD

Michael L. Parks, MD

Andrew D. Pearle, MD

Amar S. Ranawat, MD

Anil S. Ranawat, MD

Matthew M. Roberts, MD

Andrew A. Sama, MD

Harvinder S. Sandhu, MD

David M. Scher, MD

Beth E. Shubin Stein, MD

Ernest L. Sink, MD

Sabrina M. Strickland, MD

Edwin P. Su, MD

Riley J. Williams, MD

Assistant Attending Orthopedic Surgeons

Scott W. Alpert, MD

David E. Asprinio, MD

Michael B. Cross, MD

Matthew E. Cunningham, MD, PhD

Constantine A. Demetracopoulos, MD

Gregory S. DiFelice, MD

Emily R. Dodwell, MD

Mark C. Drakos, MD

Andrew J. Elliott, MD

Duretti T. Fufa, MD

Charles B. Goodwin, MD

Lawrence V. Gulotta, MD

Alexander P. Hughes, MD

Allan E. Inglis, Jr., MD

Seth A. Jerabek, MD

Edward C. Jones, MD

Lana Kang, MD

John G. Kennedy, MD

Han Jo Kim, MD

Alejandro Leali, MD

Darren R. Lebl, MD
 John C. L'Insalata, MD
 Michael J. Maynard, MD
 Moira M. McCarthy, MD
 Alexander S. McLawhorn, MD
 Danyal H. Nawabi, MD
 Sheeraz A. Qureshi, MD
 Cathleen L. Raggio, MD
 Daniel S. Rich, MD
 Jose A. Rodriguez, MD
 Howard A. Rose, MD
 Peter K. Sculco, MD
 Mark F. Sherman, MD
 Samuel A. Taylor, MD
 Kurt V. Voellmicke, MD
 David S. Wellman, MD
 Steven B. Zelicof, MD, PhD

Associate Attending Surgeons

Gary A. Fantini, MD
 (Vascular Surgery)
 Lloyd B. Gayle, MD
 (Plastic Surgery)

Assistant Attending Surgeons

Lloyd A. Hoffman, MD
 (Plastic Surgery)
 Kenneth O. Rothaus, MD
 (Plastic Surgery)

Ambulatory Care Center

Assistant Attending Physiatrist

David Hyams, MD

Consulting Staff

Asheesh Bedi, MD
 (Hip Preservation)
 Harvey Strauss, DPM
 (Podiatric Medicine)

Fellows in Orthopedic Surgery

Okezie Aguwa, MD
 (Spine Surgery)
 Diren Arsoy, MD, MSc
 (Orthopedic Trauma)

Michael Assayag, MD
 (Limb Lengthening and
 Complex Reconstruction)
 Daniel Avery, MD
 (Hand Surgery)
 Jonathan Berliner, MD
 (Adult Reconstruction Surgery)
 Sheena Black, MD
 (Sports Medicine and
 Shoulder Surgery)
 Christopher Camp, MD
 (Sports Medicine and
 Shoulder Surgery)
 Kevin Chan, MD, MS, FRCSC
 (Hand Surgery)
 Rachael Da Cunha, MD
 (Foot and Ankle Surgery)

David Dare, MD
 (Sports Medicine and
 Shoulder Surgery)

Ryan Fader, MD
 (Sports Medicine and
 Shoulder Surgery)

Thomas Falls, MD
 (Limb Lengthening and
 Complex Reconstruction)

Joseph Gentile, MD
 (Shoulder Surgery)
 Akash Gupta, MD
 (Foot and Ankle Surgery)

Elizabeth Inkellis, MD
 (Hand Surgery)
 Amir Khoshbin, MD, MSc, FRCSC
 (Adult Reconstruction Surgery)

Joseph Konopka, MD, MSc
 (Adult Reconstruction Surgery)

Yi Liu, MB
 (Metabolic Bone Diseases)

Michael McGraw, MD
 (Sports Medicine and
 Shoulder Surgery)

Natalie Nielsen, MD
 (Foot and Ankle Surgery)

Omer Or, MD
 (Metabolic Bone Diseases)

Theresa Pazonis, MD
 (Spine Surgery)
 Michael Pitta, MD
 (Adult Reconstruction Surgery)
 Nicolas Plais, MD
 (Spine Surgery)
 Danielle Ponzio, MD
 (Adult Reconstruction Surgery)
 Suzanne Roberts, MD
 (Hand Surgery)
 Fiachra Rowan, MB, BCh, BAO,
 MD, FRCS
 (Adult Reconstruction Surgery)
 Trevor Scott, MD
 (Adult Reconstruction Surgery)
 Lior Shabtai, MD
 (Pediatric Orthopedics)

Adam Shaner, MD
 (Orthopedic Trauma)
 Andrea Spiker, MD
 (Hip Preservation)
 Blake Staub, MD
 (Spine Surgery)

Alexandra Stavarakis, MD
 (Adult Reconstruction Surgery)

Matthew Tao, MD
 (Sports Medicine and
 Shoulder Surgery)

Camden Tissue, MD
 (Orthopedic Trauma)

Dean Wang, MD
 (Sports Medicine and Shoulder
 Surgery Research)

Tianyi (Tim) Wang, MD
 (Sports Medicine and
 Shoulder Surgery)

Residents

PGY5
 Alexander Christ, MD
 Peter Derman, MD, MBA
 Grant Garcia, MD
 Michael Hendel, MD, PhD
 Sraivisht Iyer, MD

Joseph Liu, MD
 Andre Shaffer, MD

PGY4

Jason Blevins, MD
 Elizabeth Cody, MD
 Keith Corpus, MD
 Elizabeth Gausden, MD
 Lionel Lazaro, MD
 Jason Lehman, MD
 Ashley Levack, MD
 Benedict Nwachukwu, MD, MBA
 Shawn Richardson, MD
 William Schairer, MD
 Ishaan Swarup, MD
 Brian Ward, MD

PGY3

Jacob Calcei, MD
 Michael Fu, MD, MHS
 Christine Johnson, MD
 Sariah Khormae, MD, PhD
 Evan O'Donnell, MD
 Steven Orr, MD
 Joseph Ruzbarsky, MD
 Evan Sheha, MD
 Jeffrey Stepan, MD

PGY2

Aleksey Dvorzhinskiy, MD
 Christine Goodbody, MD
 Jordan Gruskay, MD
 Braiden Heaps, MD
 Daniel Hurwit, MD
 Cynthia Kahlenberg, MD
 Ryan Rauck, MD
 Michael Steinhaus, MD
 Lauren Wessel, MD

PGY1

Matthew Conti, MD
 Claire Eliasberg, MD
 Yannick Goeb, MD
 Jensen Henry, MD
 Evan James, MD

Kenneth Lin, MD
Francis Lovecchio, MD
Ajay Premkumar, MD
Andre Samuel, MD

Department of Applied Biomechanics in Orthopedic Surgery

Director

Timothy M. Wright, PhD

Director, Device Development

Joseph Lipman, MS

Engineer

Peter Sun

Associate Engineers

Daniel Choi, MEng
Darrick Lo, MEng

Primary Care Sports Medicine

Associate Attending Physicians

Lisa R. Callahan, MD
Brian C. Halpern, MD
(Director)
Jordan D. Metzl, MD

Assistant Attending Physicians

William W. Briner Jr., MD
Kenton H. Fibel, MD
Marci A. Goolsby, MD
James J. Kinderknecht, MD
Osric S. King, MD
Daphne A. Scott, MD
Brett G. Toresdahl, MD
David A. Wang, MD

Fellow in Primary Care Sports Medicine

Justin Conway, MD

Department of Medicine

Physician-in-Chief; Chair, Department of Medicine; and Chief, Rheumatology Division
Mary K. Crow, MD

Chief, Pediatric Rheumatology Division

Karen B. Onel, MD

Chief, Perioperative Medicine Division

Linda A. Russell, MD

Physicians-in-Chief Emeriti

Charles L. Christian, MD
Stephen A. Paget, MD

Physicians Emeriti

Harry Bienenstock, MD
Lawrence J. Kagen, MD
Irwin Nydick, MD
Martin Nydick, MD
Ernest Schwartz, MD

Rheumatology Faculty Practice Coordinators

Theodore R. Fields, MD
Jessica K. Gordon, MD

Director, Bone Health and Osteoporosis Center of Excellence

Linda A. Russell, MD

Director, Inflammatory Arthritis Center of Excellence
Vivian P. Bykerk, MD

Director, Integrative Rheumatology and Orthopedic Center of Excellence
Susan M. Goodman, MD

Director, Lupus and Antiphospholipid Syndrome Center of Excellence
Jane E. Salmon, MD

Director, Scleroderma, Vasculitis & Myositis Center of Excellence

Robert F. Spiera, MD

Director, Barbara Volcker Center for Women and Rheumatic Disease

Michael D. Lockshin, MD

Clinical Co-Directors, Mary Kirkland Center for Lupus Care

Doruk Erkan, MD
Kyriakos A. Kirou, MD, DSc

Rheumatology Fellowship Program

Anne R. Bass, MD
(Director)
Jessica R. Berman, MD
(Associate Director)

Director, Pediatric Rheumatology Fellowship Program

Alexa B. Adams, MD

Academy of Rheumatology Medical Educators

Stephen A. Paget, MD
(Director)
Jessica R. Berman, MD
(Associate Director)

Rheumatology Division

Attending Physicians

Mary K. Crow, MD
(Physician-in-Chief)
Theodore R. Fields, MD
Allan Gibofsky, MD, JD
Susan M. Goodman, MD
Lionel B. Ivashkiv, MD
(Chief Scientific Officer)
Michael D. Lockshin, MD
C. Ronald MacKenzie, MD
Steven K. Magid, MD
Carol A. Mancuso, MD
Joseph A. Markenson, MD
Stephen A. Paget, MD
Jane E. Salmon, MD

Robert F. Spiera, MD

Associate Attending Physicians

Anne R. Bass, MD
Jessica R. Berman, MD
Vivian P. Bykerk, MD
Doruk Erkan, MD, MPH
Lisa R. Sammaritano, MD
Sergio Schwartzman, MD

Assistant Attending Physicians

Juliet B. Aizer, MD, MPH
Dalit Ashany, MD
Karmela K. Chan, MD
David Fernandez, MD, PhD
Jessica K. Gordon, MD
Shanthini Kasturi, MD, MSc
Kyriakos A. Kirou, MD, DSc
Lindsay S. Lally, MD
Lisa A. Mandl, MD, MPH
Charis F. Meng, MD
Edward J. Parrish, MD
Linda A. Russell, MD
(Chief, Perioperative Medicine)
Hendricks H. Whitman III, MD
Dee Dee Y. Wu, MD
Arthur M.F. Yee, MD, PhD

Fellows in Rheumatology

Karima Becetti, MD
Jonathan Cheah, MBBS
Karim Ladak, MB, BCh, BAO
Fardina Malik, MBBS
Bella Mehta, MBBS
Nino Mikaberidze, MD
Noa Schwartz, MD
Kai Sun, MD

Pediatric Rheumatology Division

Attending Pediatricians

Thomas J.A. Lehman, MD
Karen B. Onel, MD
(Chief)

Associate Attending Pediatrician

Alexa B. Adams, MD

Assistant Attending Pediatricians

Nancy Pan, MD
Sarah Taber, MD

Fellows in Pediatric Rheumatology

Natalie Rosenwasser, MD
Gabiella Safdieh, MD
Salma Siddique, DO
Rebecca Trachtman, MD

Perioperative Medicine Division**Assistant Attending Physicians**

Jennifer M. Berger, MD
Matthew L. Buchalter, MD
Trang M. Bui, MD, MPH
James J. Calloway III, MD
Chad M. Craig, MD
Obinna D. Eneanya, MD
Miriam B. Hoffman, MD
Wesley P. Hollomon, MD
Mary J. Kollakuzhiyil, MD
David A. Kupper-Smith, MD
Geeta G. Laud, MD
Mitchell C. Nelson, MD
Linda A. Russell, MD
(Chief)
Alana Sigmund, MD
Magdalena E. Swierczewski, MD
Christine M. Yu, MD
Florence Yu, MD
Jennie Yu, MD

Department of Medicine Services**Cardiovascular Medicine Service**

Assistant Attending Physician
Lawrence F. Levin, MD
(Director)

Endocrinology Service

Attending Physician
Richard S. Bockman, MD, PhD
(Director)

Associate Attending Physician

Emily M. Stein, MD, MSc

Assistant Attending Physician

Dorothy A. Fink, MD

Infectious Disease Service**Attending Physician**

Barry D. Brause, MD
(Director)

Assistant Attending Physicians

Michael W. Henry, MD
Andrew O. Miller, MD

Pediatric Service**Associate Attending Pediatrician**

Lisa S. Ipp, MD
(Director)

Assistant Attending Pediatricians

Hyun Susan Cha, MD
Mary F. DiMaio, MD
Stephanie L. Perlman, MD

Psychiatry Service**Attending Psychiatrist**

John W. Barnhill, MD
(Chief)

Assistant Attending Psychiatrists

Jonathan Avery, MD
Ruth Cohen, MD
Janna Gordon-Elliott, MD

Consulting Psychiatrist

Allan M. Lans, DO

Assistant Attending Psychologist

Julia M. Kim, PhD

Voluntary and Affiliated Medical Staff**Attending Physicians**

James P. Smith, MD
(Pulmonary Medicine)
Harry Spiera, MD
(Rheumatology)

Associate Attending Physicians

Jessica G. Davis, MD
(Pediatrics, Genetics)

Gail E. Solomon, MD

(Pediatrics, Neurology)

Richard Stern, MD

(Rheumatology)

Assistant Attending Physicians

Susan B. Bostwick, MD
(Pediatrics)

Stephen J. DiMartino, MD, PhD

(Rheumatology)

Michael S. Farber, MD

(Internal Medicine)

Jacobo Futran, MD

(Rheumatology)

Michael I. Jacobs, MD

(Dermatology)

Alana B. Levine, MD

(Rheumatology)

George D. Kalliolias, MD, PhD

(Rheumatology)

Bento R. Mascarenhas, MD

(Rheumatology)

Lakshmi Nandini Moorthy, MD

(Pediatric Rheumatology)

Thomas M. Novella, DPM

(Podiatric Medicine)

Dana E. Orange, MD

(Rheumatology)

Alana C. Serota, MD

(Endocrinology)

Ariel D. Teitel, MD

(Rheumatology)

Mary Beth Walsh, MD

(Rheumatology)

Department of Anesthesiology**Anesthesiologist-in-Chief and Director**

Gregory A. Liguori, MD

Anesthesiologist-in-Chief Emeritus

Nigel E. Sharrock, MB, ChB

Clinical Director

James D. Beckman, MD

Medical Director,**Clinical Research**

Jacques T. Ya Deau, MD, PhD

Medical Director, Education

David L. Lee, MD

Attending Anesthesiologists

Gregory A. Liguori, MD
Spencer S. Liu, MD
Stavros G. Memtsoudis, MD, PhD
(Medical Director, Critical Care Services)
Nigel E. Sharrock, MB, ChB

Associate Attending Anesthesiologists

Stephen N. Harris, MD
(Site Director, Stamford Hospital; Co-Director, Resuscitation)
Kethy M. Jules-Elysee, MD
(Medical Director, Pre-Anesthesia Screening)
Jeffrey Y.F. Ngeow, MD
(Pain Management)
Cephas P. Swamidoss, MD, MPH
(Associate Medical Director, Education)
Michael K. Urban, MD, PhD
(Medical Director, PACU)
William F. Urmey, MD
Jacques T. Ya Deau, MD, PhD
Victor M. Zayas, MD

Assistant Attending Anesthesiologists

Lila R. Baaklini, MD, PhD
Jonathan C. Beathe, MD
(Medical Director, Fellowship Program)
James D. Beckman, MD
Devan D. Bhagat, MD
Bradford E. Carson, MD
Mary F. Chisholm, MD
Kathryn R. DelPizzo, MD
(Medical Director, Pediatric Anesthesia)
Christopher A. DiMeo, MD
(Medical Director, Clinical Initiatives)

Naomi Dong, MD
 Chris R. Edmonds, MD
 Sean Garvin, MD
 (Medical Director, SDU-OSCU)
 Michael A. Gordon, MD
 (Medical Director, Acute Pain Service)
 Enrique A. Goytizolo, MD
 (Medical Director, Academic Observership Program)
 Douglas S. Green, MD
 (Medical Director, Bio-Ethics)
 Robert S. Griffin, MD, PhD
 (Medical Director, Ambulatory Pain Management)
 Carrie R. Guheen, MD
 (Medical Director, Resident Education)
 Semih Gungor, MD
 (Pain Management)
 Stephen C. Haskins, MD
 Michael C. Ho, MD
 Genewoo J. Hong, MD
 Richard L. Kahn, MD
 (Medical Director, Ambulatory Surgery)
 Mandip S. Kalsi, MD
 David H. Kim, MD
 Richard S. King, MD
 Meghan A. Kirksey, MD, PhD
 Kanupriya Kumar, MD
 (Site Director, ASC)
 Vincent R. LaSala, MD
 Andrew C. Lee, MD
 (Medical Director, Quality Assessment and Performance Improvement)
 David L. Lee, MD
 Yi Lin, MD, PhD
 Jiabin Liu, MD, PhD
 Daniel B. Maalouf, MD, MPH
 John G. Muller, MD
 Jemiel A. Nejm, MD
 Joseph A. Oxendine, MD
 Swetha R. Pakala, MD
 (Medical Director, Global Health Initiatives)
 Leonardo Paroli, MD, PhD

Thomas J. Quinn, MD, MBA
 (Medical Director, Epic Initiatives; Medical Director, Resuscitation)
 Daniel I. Richman, MD
 (Pain Management)
 James J. Roch, MD
 Ellen M. Soffin, MD
 (Assistant Medical Director, Clinical Research)
 Lauren H. Turteltaub, MD
 (Assistant Medical Director, Fellowship Program)
 Philip J. Wagner, MD
 (Assistant Medical Director, Acute Pain Medicine Services)
 Seth A. Waldman, MD
 (Medical Director, Pain Management)
 David Y. Wang, MD, MS, MPH
 (Medical Director, Chronic Pain Education)
 Pamela K. Wendel, MD
 Douglas S. Wetmore, MD
 Elaine I. Yang, MD

Assistant Attending Physicians
 Vladimir N. Kramskiy, MD
 (Pain Medicine Fellowship Site Director)
 Christine Peterson, MD
 (Director, Inpatient Pain Services)

Fellows in Regional Anesthesiology and Acute Pain Medicine
 Airat Agbetoba, MD
 Christopher Farlinger, MD, FRCPC
 Vandy Gaffney, MD, MS
 Samrawit Goshu, MD
 Mark Jensen, MD
 Jeannie Lui, MD
 Lauren Nakazawa, MD

Fellows in Clinical Research
 Crispiana Cozowicz, MD
 Eva Moerwald, MD

Department of Neurology

Neurologist-in-Chief and Director

Dale J. Lange, MD

Neurologist Emeritus

Peter Tsairis, MD

Attending Neurologists

Ronald G. Emerson, MD
 Dale J. Lange, MD
 Dexter Y. Sun, MD, PhD

Associate Attending Neurologists

Jonathan M. Goldstein, MD
 Barry D. Jordan, MD
 Gerald J. Smallberg, MD

Assistant Attending Neurologists

Bridget T. Carey, MD
 Vladimir Kramskiy, MD
 Dora K. Leung, MD
 Erin E. Manning, MD
 Brion D. Reichler, MD
 Teena Shetty, MD
 Alexander Shtilbans, MD, PhD

Fellows in Neurology/ Neuromuscular Medicine

Pantelis Pavlakis, MD, PhD
 Hebatallah Rashed, MB, BCH

Department of Pathology and Laboratory Medicine

Pathologist-in-Chief and Director

Michael J. Klein, MD

Pathologist-in-Chief Emeritus

Peter G. Bullough, MD

Attending Pathologists

Edward F. DiCarlo, MD

Michael J. Klein, MD
 David L. Wuest, MD
 (Blood Bank)

Associate Attending Pathologist

Roberto A. Garcia, MD

Assistant Attending Pathologists

Cheryl Goss, MD
 (Blood Bank)
 Giorgio Perino, MD

Fellow in Orthopedic Pathology

Daniel Ramirez, MD

Department of Physiatry

Physiatrist-in-Chief and Director

Joel M. Press, MD

Physiatrists-in-Chief Emeriti

Joseph H. Feinberg, MD
 Gregory E. Lutz, MD

Director of Education

James F. Wyss, MD, PT

Fellowship Director

Peter J. Moley, MD

Director of Quality and Safety

Paul Cooke, MD

Attending Physiatrists

Joseph H. Feinberg, MD
 Joel M. Press, MD

Associate Attending Physiatrist

Gregory E. Lutz, MD

Assistant Attending Physiatrists

Vincenzo Castellano, MD
 Alice Chen, MD
 Paul M. Cooke, MD
 Stephen G. Geiger, MD
 Jonathan S. Kirschner, MD

Emerald Lin, MD
Christopher Lutz, MD
Elizabeth M. Manejías, MD
Steve Massimi, MD
Peter J. Moley, MD
Alexander C. Simotas, MD
Jennifer L. Solomon, MD
Vijay B. Vad, MD
James F. Wyss, MD, PT

Consulting Staff

Rock G. Positano, DPM, MSc, MPH
(Podiatric Medicine; Non-Surgical Foot and Ankle)

Fellows in Physiatry/Spine and Sports Medicine

Humaira Ashraf, MD
Nicholas Beatty, DO
Leigh Hanke, MD, MS
Eric Holder, MD

Department of Radiology and Imaging

Chairman

Hollis G. Potter, MD

Vice Chairman (& Chief, IR)

John A. Carrino, MD, MPH

Radiologists-in-Chief Emeriti

Robert H. Freiburger, MD
Helene Pavlov, MD

Radiology and Imaging Emeritus

Bernard Ghelman, MD

Director of Education

Carolyn M. Sofka, MD

Director of Resident and Medical Student Training

Douglas N. Mintz, MD

Co-Directors of Research

Theodore T. Miller, MD
(Clinical Review Panels)

Alissa J. Burge, MD
(Fellowship Research)

Attending Radiologists

John A. Carrino, MD, MPH
Richard J. Herzog, MD
Theodore T. Miller, MD
(Chief, Ultrasound)
Helene Pavlov, MD
Hollis G. Potter, MD
Robert Schneider, MD

Associate Attending Radiologists

Eric A. Bogner, MD
(Chief, Computed Tomography)
Kevin R. Math, MD
Douglas N. Mintz, MD
Carolyn M. Sofka, MD

Assistant Attending Radiologists

Jennifer L. Berkowitz, MD
Alissa J. Burge, MD
Yoshimi Endo, MD
(Chief, Ultrasound Research)
Li Foong Foo, MD
Christian S. Geannette, MD
Shari T. Jawetz, MD
(Chief, Body Computed Tomography & Radiology QA Representative)

Gabrielle P. Konin, MD
Darius P. Melisaratos, MD
Ogonna Kenechi Nwawka, MD
(Chief, Ultrasound Education)

Elizabeth Schultz, MD
Darryl B. Sneag, MD

Fellow in MRI

Meghan Sahr, MD

Fellows in Musculoskeletal Radiology

Nicholas Gutierrez, MD
Vivek Kalia, MD, MPH
Susan Lee, MD
Brian Tischler, MD

Department of Rehabilitation Medicine

Director and Chief

Michael M. Alexiades, MD

Ambulatory Care Center Physicians

Bento R. Mascarenhas, MD
Lakshmi Nandini Moorthy, MD
Alana C. Serota, MD

Honorary Staff

Peter G. Bullough, MD
(Pathology and Laboratory Medicine)
Stephen W. Burke, MD
(Orthopedic Surgery)
Charles L. Christian, MD
(Medicine)
Robert H. Freiburger, MD
(Radiology and Imaging)
Lawrence J. Kagen, MD
(Medicine)
David B. Levine, MD
(Orthopedic Surgery)
Peter Tsairis, MD
(Neurology)

Welcome to New Physicians

Lila R. Baaklini, MD
Thomas W. Bauer, MD
Jennifer L. Berkowitz, MD
Karmela K. Chan, MD
Akansha Chowdhary, MD
Peter D. Fabricant, MD
David R. Fernandez, MD
Dorothy A. Fink, MD
Veronica Garcia Fusco, MD
Cheryl A. Goss, MD
Richard H. Haddad, MD
Shanthini Kasturi, MD
Stephen J. Massimi, MD
Kevin R. Math, MD
Alexander S. McLawhorn, MD
Karen B. Onel, MD

Joel M. Press, MD
Sheeraz A. Qureshi, MD
Alana E. Sigmund, MD
Emily M. Stein, MD
Sarah F. Taber, MD
Dan A. Zlotolow, MD

Research Division

Chief Scientific Officer

Lionel B. Ivashkiv, MD

Chief Scientific Officer Emeritus

Steven R. Goldring, MD

Director of Clinical Research

Robert N. Hotchkiss, MD

Director of Healthcare Research Institute

Stephen Lyman, PhD

Senior Scientists

Todd J. Albert, MD
David W. Altchek, MD
Franck Barrat, PhD
Carl Blobel, MD, PhD
Oheneba Boachie-Adjei, MD
Richard S. Bockman, MD, PhD
Adele L. Boskey, PhD
Mathias P. Bostrom, MD
Frank P. Cammisia, Jr., MD
Frank A. Cordasco, MD
Charles N. Cornell, MD
Mary K. Crow, MD
Stephen B. Doty, PhD
Federico P. Girardi, MD
Mary Goldring, PhD
Steven B. Haas, MD
Jo A. Hannafin, MD, PhD
John H. Healy, MD
David L. Helfet, MD
Richard Herzog, MD
Lionel B. Ivashkiv, MD
Joseph M. Lane, MD
Thomas J.A. Lehman, MD
Gregory A. Liguori, MD
Spencer Liu, MD
Michael D. Lockshin, MD
Joseph A. Markenson, MD

Robert G. Marx, MD
Stavros Memtsoudis, MD, PhD
Stephen A. Paget, MD
Alessandra Pernis, MD
Hollis G. Potter, MD
Scott A. Rodeo, MD
Inez Rogatsky, PhD
Jane E. Salmon, MD
Eduardo A. Salvati, MD
Thomas P. Sculco, MD
Nigel E. Sharrock, MB, ChB
Peter A. Torzilli, PhD
Russell F. Warren, MD
Andrew J. Weiland, MD
Geoffrey H. Westrich, MD
Thomas L. Wickiewicz, MD
Scott W. Wolfe, MD
Timothy M. Wright, PhD

Associate Scientists

Jonathan T. Deland, MD
Xianghua Deng, MD
Edward DiCarlo, MD
Doruk Erkan, MD
Mark P. Figgie, MD
Howard Hillstrom, PhD
Robert N. Hotchkiss, MD
Matthew F. Koff, PhD
Theresa Lu, MD, PhD
Stephen Lyman, PhD
C. Ronald MacKenzie, MD
Suzanne A. Maher, PhD
Carol A. Mancuso, MD
Stephen J. O'Brien, MD
Paul Edward Purdue, PhD
Bernard A. Rawlins, MD
Laura Robbins, DSW
Lisa R. Sammaritano, MD
Harvinder S. Sandhu, MD
Michael Urban, MD
William F. Urmey, MD
Riley J. Williams III, MD
Jacques T. Ya Deau, MD, PhD

Assistant Scientists

Alissa J. Burge, MD
Yurii Chinenov, PhD
Matthew E. Cunningham, MD, PhD
Chitra Dahia, PhD
Aaron Daluiski, MD

Emily R. Dodwell, MD
Laura T. Donlin, PhD
Christina I. Esposito, PhD
Peter D. Fabricant, MD
Jessica K. Gordon, MD
Lawrence Gulotta, MD
Russel C. Huang, MD
Carl Imhauser, PhD
Kyriakos Kirou, MD, DSc
Darren R. Lebl, MD
Daphne Ling, PhD
Lisa A. Mandl, MD
Miguel Otero, PhD
Kyung-Hyun Park-Min, PhD
Giorgio Perino, MD
Lazaros Poultides, MD, PhD
Cathleen L. Raggio, MD
Andrew A. Sama, MD
Gisela Weskamp, PhD
Xu Yang, MD
Baohong Zhao, PhD

Instructors

Nathalie Burg, MD
Scott DeNegre, PhD
Meghan Kirksey, MD, PhD
Andreas Kontaxis, PhD
Sungho Park, PhD
Sarah Pownder, DVM
Xiaoping Qing, MD, PhD
Rupali Soeters, PhD

Visiting Scientist

Hayden-William Courtland, PhD

Fellows in Research

Kirsty Culley, PhD
Mikhail Olfieriev, MD

Scientists Emeriti

Madhu Bhargava, PhD
Nathan Brot, PhD
Peter G. Bullough, MD
Albert H. Burstein, PhD
Charles L. Christian, MD
Allan E. Inglis, MD
Robert C. Mellors, MD, PhD
Aaron S. Posner, PhD

Adjunct Senior Scientists

Donald Bartel, PhD
Carl Nathan, MD
Paddy Ross, PhD
Thomas Santner, PhD
Marjolein van der Meulen, PhD

Adjunct Associate Scientists

Robert Blank, MD, PhD
Lawrence Bonassar, PhD
Lara Estroff, PhD
Philip Giampietro, MD, PhD
Xiaoyu Hu, MD, PhD
Elizabeth Kozora, PhD
Mark Lachs, MD
Daniel MacDonald, PhD
Nancy Pleshko, PhD
Luminita Pricop, MD
Licia Selleri, MD, PhD

Adjunct Assistant Scientists

Nelly Andarawis-Puri, PhD
Nikolaus Binder, MD
Jonathan Bourne, PhD
Robert Closkey, MD
Eve Donnelly, PhD
Eugenia Giannopoulou, PhD
George Kalliolias, MD, PhD
Peter Kloen, MD
Lance Silverman, PhD
Aasis Unnanuntana, MD

Adjunct Instructor

Yingxin Goa, PhD

Management & Volunteers

September 2017

Executive Officers

Shapiro, Louis A.

*President and
Chief Executive Officer*

Goldstein, Lisa

*Executive Vice President and
Chief Operating Officer*

Koch, Irene

*Executive Vice President,
Chief Legal Officer and
Secretary*

Malakoff, Stacey

*Executive Vice President and
Chief Financial Officer*

Senior Vice Presidents

Achan, Leonard

*Innovation & Business
Development*

Bianco, Ralph

Operations

Callagy, Catherine

*Development
Chief Development Officer*

Cioppa-Mosca, JeMe

Rehabilitation Medicine

Crowley, Richard

Physician Services

Goldberg, Stephanie J.

*Patient Care
Chief Nursing Officer*

Gorlewski, Todd

Financial Operations

Gould, Marc

Finance Administration

MacLean, Catherine, MD, PhD

*Value Management
Chief Value Medical Officer*

Nelson, Jamie M.

*Information Technology
Chief Information Officer*

Robbins, Laura

Global and Academic Affairs

Slawitsky, Bruce

*Human Resources and Service
Excellence*

Vice Presidents

Ansorge, Andrea G.

Corporate Compliance

Bell, Stephen

Finance Administration

Clark, Thomas P.

Human Resources

DeNegre, Scott

Operational Excellence

Elman, Sloane

Legal Affairs

Englehart, John

Chief Marketing Officer

Flics, Susan

Operations

Grassia, Vincent

Research Administration

Horvath, Michelle

Quality Management

Kennett, William D.

Supply Chain

Lo Basso, Ann

Nursing Administration

Lovece Ross, Stephanie

Laboratory Medicine

Murray-Weir, Mary

Rehabilitation Medicine

Nolan, Robert

Payor Strategy

O'Brasky, Martha

Education and Academic Affairs

Oppenheimer, Justin

Service Lines and Strategy

Pearlman, Elizabeth A.

Information Technology

Perez, Ronald

Perioperative Services

Rentas, Jennifer

*Governance and Regional
Markets*

Sweeney, Brian P.

Financial Planning and Budget

Wencak, Walter J.

Revenue Cycle

White, Edward

Radiology and Imaging

Assistant Vice Presidents

Agboola, Bashir A.

Information Technology

Arora, Vikrant

Information Technology

Bosanko, Roberta

Finance ICD 10

Buscemi, Peter

Financial Planning and Budget

Calcano, Emil A.

Sports Marketing

Cohen, Karen

Information Technology

Finerty, Eileen

Nursing Administration

Fisher, Charles

Rehabilitation Medicine

Furnari, Lori

Physician Services

Gleich, Andres

Finance-Revenue Planning

Goldberg, Allison H.

Professional Education

Goldsmith, Sandra

Education and Academic Affairs

Guillot, Ricky

Nursing Administration

Healey, Mark A.

Engineering-Administration

Karp, Randi A.

Human Resources

Lazo, Cristian

Physician Services

Maldari, Ralph A.

Ambassador Services

Melia, Joanne

Risk Management

Nestman, Cory

Nursing Administration

O'Brien, Cathi

Rehabilitation Medicine

Parnofiello, Joanne

Human Resources

Pelaez, Julie

Digital Communications

Perrino, Nicholas

Nursing Administration

Quinlan, Patricia

Nursing Administration

Sadler, Ross

Managed Care

Sheehan, Rachel

Brand Marketing and Analytics

Steele, Niloofar

Information Technology

Taylor, Melissa R.

Patient Access

VanVelzor, Brian

International Center

Controller

Spencer Jr., George

Finance Controller

Senior Directors

Bandel, Jonathan M.

Service Line Management

Burke, Kathleen

Stamford Hospital

Cabanillas, Julio

Education

Cetnerowski, Pawel

Physician Services

Collura, Philip

General Accounting

Considine, Anne M.
Innovation & Business Development

Decorato, Karen
Continuum of Care Service

DiGiacomo, Robert
Rehabilitation Medicine

Edelstein, Jaime
Rehabilitation Medicine

Elogoodin, Bella
Visitor Services and Family Atrium

Ennis, Marcia K.
Education Publications and Communication

Forbes, Meredith
Development

Grimaldi, Peter
Physician Assistant Department

Guss, Bryan
Manhattan ASC

Harmon, Jordan S.
Value Management

Horton, Roberta
Social Work Programs

Januska, Maureen
Patient Accounting

Jurik, Chris
Financial Planning and Budget

Kalman, Eden
Food and Nutrition Services

Kaufman, Reesa
Development

Kerr, Stephanie
International Center

King, David M.
Innovation & Business Development

Kohli, Inderpal S.
Information Technology

Kovac, Jessica
Service Line Management

Lafage, Virginie
Dr. Frank Schwab Spine Service

Langone, Troy D.
OR Materials Management

Madonia, Julie A.
Rehabilitation Medicine

Memnon, Carle-Marie
Academic Training

Menzie, Holly J.
Development

Monsky, Nicole
Service Line Marketing

Neihart, Benjamin
Development

Page, Carol
Rehabilitation Medicine

Plante, Rodney S.
Information Technology

Possley, Scott W.
Quality and Accreditation

Purnell, Katharine
Service Line Management

Reist, Louise
Corporate Compliance

Roditi, Allison M.
Service Line Management

Rounds, Donna
Research Administration

Schwartz, Rachelle
Case Management

Stack, Roberta
Anesthesia Administration

Stauton, Edward
Westside ASC

Titmuss, Matthew P.
Value Management

Topor, Lawrence S.
Managed Care

Tuohy, Sharlynn
PT-Acute Care

Ventura, Brenda
Global Partnerships

Wegner, Frank
General Accounting

Wessolock, Robert
Pharmacy

Westort, Steven W.
Finance Administration

Willett, Tracy
Nursing Administration

Williams, Donna
Financial Planning and Budget

Wu, Chao
Chief Patient Experience Officer

Zenkewich, Peter
Material Management and Bioengineering

Executive Directors

Fleury Jr., Richard
Radiology Practice Operations

Gagliardi, Rosemarie
Research Administration

Schwab, Rise
Research Administration

Directors

Abbruzzese, Giovanni
Safety Department

Alper, Dina A.
Strategy & Business Development

Antao, Vinicius C.
Biostatistics-Core

Arends-Marquez, Alexa
Coding

Arkipoff, Maria
Private Ambulatory Service

Barone, Mary
Stamford OPC-Administration

Biase, Blaire
Innovation & Business Development

Bogle, Maureen
Medical Staff Services

Bonanno, Lenny
Environmental Services

Bosanko, Glenda M.
Corporate Compliance

Brendel, Robin
Regional Markets

Burford, Ellen T.
Risk Management

Calandra, John M.
Corporate Compliance

Carandan, Maile
Audio Visual

Cardamone, Susan
Anesthesia, Administration

Carollo, James P.
Finance-Revenue Planning

Carr, Karen
Research Administration

Cina, Richard M.
Patient Accounting

Conti, Frank D.
Engineering-Administration

Couch Jr., Robert D.
Patient Registration

Dalley, Lydia
Service Excellence

De Simone, Jonna N.
Physicians Assistant

Denneen, John
Service Line Management

Diesing, Wendy
MRI-Main

Do, Huong
Health Research Institute

Doty, Julia G.
Rehabilitation Medicine

Faust, Margaret
Information Technology

Felix, Karla J.
Academic Training

Ferre, Jeri-Jean V.
Information Technology

Foiles, Donald
Security

Garber, Alessandra T.
Development

Garrison, Glenn W.
Prosthetics and Orthotics

Goldberg, Lawrence
Human Resources

Gonzalez, John
OR Inventory and Distribution

Gonzalez, Lourdes R.
International Center

Grace, David
Operational Excellence

Grote, Rebekah
Development

Hafiz, Taherah S.
Volunteers

Hickenbottom, Tracy L.
Public & Media Relations

Hillstrom, Howard
Motion Analysis

Janosky, Joseph
Public and Patient Education

Jean-Simon, Claire
Private Practice Support

Jeffries-Davis, Ericka J.
General Accounting

Johnson, James
Physician Services

Juliano, Karen
Rehabilitation Medicine

Kapoor, Pooja
Paramus OPC-Administration

Kolodny, Adrienne
Physician Referral Service

Kuba, Tzipora
Research Administration

Kyritz, Michael
Research Administration

Largey, Robert
Innovation & Business Development

Leung, Robert A.
Financial Planning and Budget

Lipman, Joseph D.
Biomechanics

Lorenz, Gregory
Information Technology

Nevins, Jill
Development

Nocon, Allina
Complex Joint Reconstruction

Nguyen, Joseph T.
Biostatistics

Oettinger, Sr. Margaret
Spiritual Care

Oledzka, Magdalena M.
Rehabilitation Medicine

Pagan, Alfred
Medical Staff Services

Parmalee, Keith A.
Regional Markets

Ramos, Leandro
Information Technology

Rhoss, Gwendolyn
Patient Access Services

Rispaud, Glenn
Health Information Management

Rosenberg, Matthew
Anesthesia Administration

Sackman, Sandra
Administrative Offices

Saha, Sujit
Financial Planning and Budget

Silvano, Carla
Perioperative Support Services

Singh, Suchet
Financial Planning and Budget

Smith, Meghan
Private Practice Support

Stern, Sam
Information Technology

Stair, Amy
Professional Education

Strauss, Jerry
General Accounting

Swenson, Mark
Research Administration

Tanenbaum, Lauren
Service Line Management

Tokmanian, Norair
General Accounting

Tsai, Krystle A.
CHARM Center

Vanrell, Jason
Information Technology

Vassallo, Sherrie
Clinical Research, Sports Medicine

Waldinger, Paul E.
Innovation & Business Development

Williams, Denise C.
Organizational Development

Williams, Douglas J.
Neurological Service

Wukovits, Barbara
Anesthesiology

Administrative Directors

Hargett, Mary J.
Anesthesiology

Katkin, Pamela
Physicians Assistants

Smith, Christopher J.
Radiology and Imaging

Patient Care Directors

Baragiano, Marita A.
Ambulatory Care Center

Chakrabarty, Nefer Ann T.
11th Floor Inpatient

Crescenzo, Carol
Pre Surgical Screening

Crocker, Montgomery
1st Floor PACU

Delfin, Marlo
Special Procedures, 75th Street

DiLorenzo, Geraldine
6 East

Dougherty, Tricia C.
Medicine Nursing

Fischer, Colin
Ambulatory Surgery

Gecale, Nino Gino R.
Operating Room

Hansen, Vaughn D.
4th floor PACU

Hoffman, Nicole
7th Floor Inpatient

Hoffmann, Jayne M.
Pre Surgical Screening

Holmes, Keesha L.
5 East

Leff, Linda
Infusion Therapy

Madamba-Ramos, Pia Dolores F.
6th Floor Inpatient

Monteron, Ronald
10th Floor Inpatient

Park, Imsoo
Operating Room

Sass, Kerry Ann
8 East

Watson, Maura
Pediatrics-Outpatient and Inpatient

Hospital Chaplains

Fr. David Adiletta, OP
Chaplain Elaine Chan
Chaplain Margo Heda
Sr. Margaret Oettinger, OP
Chaplain Margaret Tuttle
Dominican Friars Health Care Ministry

Volunteers

25 Years or over
Ms. Anita Cruso
Ms. Lauren Fox
Ms. Maria-Elena Hodgson

Ms. Judith Johnston-Grogan

20 Years or over

Ms. Barbara Brandon

15 Years or over

Ms. Anery Aste
Mr. Frederick Chiao
Ms. Frances Frank
Ms. Jenny Lin
Ms. BeBe Prince
Ms. Gail Starler
Dr. Beth Viapiano
Ms. Lee Weber

10 Years or over

Mr. Frederick Jacobson
Ms. Desirée Lowe
Ms. Bette Nelson
Ms. Olympia Osborne
Ms. Helen Palmer
Ms. Arlene Shiller

5 Years or over

Ms. Mercedes Alvarez
Ms. Devra Block
Ms. Alice Buedden
Ms. Lynne Calman
Ms. Judith Campbell
Mr. Herbert Feldstein
Ms. Rosario Gaddi
Ms. Marilyn Hendrix
Ms. Ann Hopkins
Ms. Suzie Kim
Mr. Alexander Lazar
Ms. Kathy Leventhal
Ms. Sarah Macdonald
Ms. Caroline Magnus
Ms. Nancy Matsumoto
Ms. Carol Mauro
Ms. Irene McCreery
Ms. Irene McParland
Ms. Virginia Moffatt
Ms. Ingrid Monsels
Ms. Marie Reddy
Ms. Lorell Smith
Ms. Winifred Speyer
Ms. Irene Taylor

HSS Notice of Nondiscrimination and Accessibility

Hospital for Special Surgery is committed to providing high quality care and skilled and compassionate service to our community. Consistent with this commitment, Hospital for Special Surgery complies with applicable federal, state, and local civil rights laws and does not discriminate on the basis of actual or perceived race, color, creed, ethnicity, religion, national origin, alienage or citizenship status, culture, language, age, disability, socioeconomic status, sex, sexual orientation, gender identity or expression, partnership or marital status, veteran or military status, or any other prohibited basis.

Hospital for Special Surgery:

Provides free aids and services to people with disabilities to communicate effectively with us, such as:

- Qualified sign language interpreters; and
- Written information in other formats, such as large print, audio, and accessible electronic formats.

Provides free language services to people whose primary language is not English, such as:

- Qualified interpreters; and
- Information written in other languages.

ATENCIÓN: Si usted habla español, le avisamos que tenemos servicios lingüísticos gratuitos a su disposición. Llame al: 1-212-606-1760, TTY: 1-800-676-3777.

注意：如果您講中文，可向您提供免費語言服務。
致電1-212-606-1760
TTY:1-800-676-3777

Внимание: Если Вы говорите по русски, примите к сведению, что Вы можете воспользоваться бесплатными услугами переводчика. Звоните по номеру: 1-212-606-1760, TTY: 1-800-676-3777

ATANSYON: Si ou pale Kreyòl Ayisyen, gen sèvis asistans nan lang ki disponib pou ou gratis. Rele nan 1-212-606-1760, TTY: 1-800-676-3777.

알려드립니다: 귀하께서 한국어를 하시는 경우, 무료로 언어 도움 서비스를 이용하실 수 있습니다. 1-212-606-1760 (TTY: 1-800-676-3777) 번으로 전화하십시오.

ATTENZIONE: se parli italiano sono disponibili servizi di assistenza linguistica gratuiti. Chiama il numero 1-212-606-1760, TTY: 1-800-676-3777.

אכטונג: אויב איר רעדט אידיש, זענען פאר אייך דא צו באקומען שפראך הילף סערוויסעס פריי פון אפצאל. רופט TTY: 1-800-676-3777, 1-212-606-1760

দুর্ঘটী আকর্ষণ: যদি আপনি বাংলায় কথা বলেন, তাহলে আপনি বিনামূল্যে ভাষাগত সহায়তা পরষিবো পতে পারেন। ফোন করুন: 1-212-606-1760, TTY: 1-800-676-3777

UWAGA: Jeżeli mówią Pan/Pani po polsku, dostępne są dla Państwa bezpłatne usługi pomocy językowej. Proszę zadzwonić pod numer 1-212-606-1760, TTY: 1-800-676-3777.

ملاحظة: إذا كنت تتحدث اللغة العربية، فإننا نوفر لك خدمات مساعدة لغوية بالمجان.
اتصل على 1-212-606-1760
هاتف نصي (TTY): 1-800-676-3777

If you need these services, contact Bella Elogoodin, Senior Director, languageservices@hss.edu, Tel.: 1.212.606.1760.

If you believe that Hospital for Special Surgery has failed to provide these services or discriminated in another way, you can file a grievance with Bruce Slawitsky, Senior Vice President, Hospital for Special Surgery, 535 East 70th Street, New York, NY 10021, TTY: 1.800.676.3777, Fax: 212.606.1961, slawitskyb@hss.edu. You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, you may contact the office of Bruce Slawitsky for assistance.

You also have the right to file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically at <https://ocrportal.hhs.gov/ocr/portal/lobby.jsf>, or by mail or phone at: U.S. Department of Health and Human Services, 200 Independence Avenue SW, Room 509F, HHH Building, Washington, DC 20201, 1.800.368.1019, 800.537.7697 (TDD). Complaint forms are available at <http://www.hhs.gov/ocr/office/file/index.html>.

VEUILLEZ NOTER: Si vous parlez français, des services d'assistance linguistique gratuits, sont à votre disposition. Appelez le 1-212-606-1760, TTY: 1-800-676-3777.

توجه فرمائیں: اگر آپ کی زبان اردو ہے تو آپ کے لیے زبان میں معاونت فراہم کرنے والی سروسز (لینگویج اسسٹنس سروسز) بلا معاوضہ دستیاب ہیں۔ کال کریں 1-212-606-1760
TTY: 1-800-676-3777

PAUNAWA: Kung nagsasalita ka ng Tagalog, may makukuha kang mga libreng serbisyo ng tulong sa wika. Tumawag sa 1-212-606-1760, TTY: 1-800-676-3777.

ΠΡΟΣΟΧΗ: Εάν μιλάτε ελληνικά, διατίθενται δωρεάν υπηρεσίες γλωσσικής βοήθειας για εσάς. Καλέστε το 1-212-606-1760. TTY: 1-800-676-3777.

VINI RE: Nëse flisni shqip, keni në dispozicion shërbime ndihme për gjuhën pa pagesë. Telefononi 1-212-606-1760, TTY: 1-800-676-3777.

Leadership Councils

April 1, 2017

Hospital for Special Surgery is proud to recognize our Councils—volunteer leadership groups dedicated to advancing the clinical care, research, education and community outreach mission of HSS.

Rheumatology Council

The Rheumatology Council is dedicated to advancing the mission of HSS's Division of Rheumatology by raising funds and awareness for the Division's efforts. The largest of its kind in the nation, the Division of Rheumatology is widely recognized for the excellence of its clinical, scientific and educational activities related to rheumatic, autoimmune and inflammatory illnesses.

Co-Chairs

Mary K. Crow, MD
Renee Flug
Connie Anne Phillips
Susan W. Rose

Members

Juliet Aizer, MD
Vivian P. Bykerk, MD
Stephan Feldgoise
Cynthia Golub
Catherine Green
Marla R. Lemonik
Amy Pennington
Jane E. Salmon, MD
Manon Z. Slome
Margaret S. Smith
Robert F. Spiera, MD
Beth Ann and John Voulgaris
Patricia G. Warner

Pediatric Council

The Pediatric Council is dedicated to furthering the mission and goals of the Lerner Children's Pavilion, the "hospital-within-a-hospital" that is renowned for delivering world-class pediatric care. The Council aims to increase awareness of HSS's expertise in pediatric musculoskeletal medicine and raises critical financial support for patient care and cutting-edge research.

Co-Chairs

Monica A. Keany
Lara Lerner
Roger F. Widmann, MD

Members

Kenna Brockriede
Kimberly Cantor
H. Susan Cha, MD
Sheree Chiou
Erica Christensen
Catherine Corry
Alexander and Erica Crisses
Laura Dartnall
Mary Ann Deignan
Violeta Dela Cruz Paluszek
Katherine Doerge
Daniel W. Green, MD
Kenneth V. Handal
Lisa S. Ipp, MD
Neil and Sarita Jairath
Elisabeth Jones-Hennessy
Kim Klimczak
Mariko and Matthew LeBaron
Deirdre McGraw
Mary Kathryn Navab
Jennifer Sauer
Corrente Schankler
David M. Scher, MD
Michael Shweky
Maura Watson, RN
Sara Weiner
Todd C. Whitenack
McCartney Wilkins

Research Council

The Research Council is dedicated to advancing the research mission of HSS. The Council raises awareness of and support for the world-class basic and translational research conducted by the HSS Research Institute for the benefit of patients here and around the globe.

Honorary Chairs

Richard L. Menschel
Torsten N. Wiesel, MD

Co-Chairs

Lionel B. Ivashkiv, MD
Alan S. MacDonald

Members

Leonard Achan*
Todd J. Albert, MD*
Mary K. Crow, MD*
Florence Davis
(The Starr Foundation)
Anne Ehrenkranz
Marc Gabelli
Giammaria Giuliani
Steven B. Haas, MD
Maria Ines Kavamura, MD, PhD
Thomas J. Kelly, MD, PhD*
Pamela Lipkin, MD
Stephen Lyman, PhD
Robert G. Marx, MD
Alessandra Pernis, MD
Frank Schwab, MD

*Ex-Officio

International Advisory Council

The International Advisory Council is dedicated to creating global awareness and enhancing international relationship building around the world. The Council provides guidance and advice regarding emerging international trends that may affect the business and strategic global directions for the Hospital while serving as ambassadors for existing initiatives that contribute to HSS as an international leader.

Chair

David McCormick

Members

Todd J. Albert, MD
Mathias P. Bostrom, MD
Karen Cook
Andreas C. Dracopoulos
Katharine Eltz-Aulitzky
Marc Gabelli
Maria Ines Kavamura, MD, PhD
Henry A. Kissinger, MD
David K. Li
Richard L. Menschel
Chitranjan S. Ranawat, MD
Rick Rieder
Laura Robbins
Benjamin M. Rosen
Thomas P. Sculco, MD
Louis A. Shapiro
Edward Thompson
Paul A. Volcker
Torsten N. Wiesel, MD

Planned Giving

The Wilson Society

In 1998, HSS established the Wilson Society to recognize donors during their lifetimes for including the Hospital in their estate plans. Named in honor of Surgeon-in-Chief Emeriti Philip D. Wilson, Jr., MD and Philip D. Wilson, Sr., MD, the Society is helping HSS create a better future for those affected by musculoskeletal disease.

Todd J. Albert, MD
Helen and Robert Appel
Susan Bard
Michael D. Berkowitz
John R. Bockstoce, PhD
Jo-Ann Bongiorno
Marcia Budd
Alfred J. and Ann Buescher
Eliane Bukantz
Deborah W. Burke
Maryann Caliri
Marilyn and Robert Callander
Mildred Carroll
H. James Caulkins III*
Stephanie Chisholm
Catherine M. Cooney
Edward T. Cooper
Edith M. Damm
Valerie D'Angelo
Helen Ann DeSimone, DDS
David M. Dines, MD
Judith S. Dronzek
Anne and Joel Ehrenkranz
David C. Facer

Mary A. Felton
Mark P. Figgie, MD
Lorrie Fox
Rosemary Franck
Rose Franzone
Constance Frederick
Sheryl Gold
Helen E. Goodman
Michael Sean Grant
Ann Gregory, PhD
Edmund A. Grossman
David Halloran
Charles J. Hamm
Kenneth V. Handal and Mary Francina Golden
Genan Holder
Heidi M. Holterbosch
Margaret V. Howard
Yves-Andre Istel
Frederick L. Jacobson
Judith A. Jedlicka
Michelle Jenkins
Peter H. Judd
Carol Klapper
Robert S. Krause*
Robert S. Kreisler
Richard E. Leslie
David B. Levine, MD
Norma Levitt
Rafael A. Lopez
Robert A. Lorelli
Honey J. Low
Donna MacCrae
Kathy and C. Ronald MacKenzie, MD
Herbert J. Maletz
Barbara and Richard Marks
Kathleen T. May
Mary Ferris McCormack*

James McMillen*
J. Donald McNamara
Irene Meister, PhD
Peter D. Meltzer
Robin Merle
Robert Meyer
Hermina Mikolic
James T. Mills
Ann and Alan Mintz
Marilyn Mittleman
Donna D. Morgan, MD
Arlene Murry
Jean Nathan
Irwin Nydick, MD
Martha Frish Okabe
Stephen A. Paget, MD
Aldo Papone
Barnet I. Phillips
Anthony Plesner
Samuel S. Polk
Diane P. Price
Richard S. Price
Elissa Querze
Christiane A. Ramirez
Daniel I. Richman, MD
Gloria Roma
Edwin G. Roos
Paula Root
Susan Rose
Benjamin M. Rosen
Philip Rothblum
Richard Savitt
Peter G. Scotese
Thomas P. Sculco, MD
Joseph M. Sedacca
Steven D. Seymour
Holly S. Sillau
Christopher Simon

Rose Smith
Thomas W. Smith
Bernice Smoller*
Lloyd Solomon
Eugene Steger
Donald Stone*
Frank T. Strafaci
Karen and Robert Sywolski
Karen Tapia
David E. Tate, Jr., MD
Thomas J. Thomas
Howard S. Thompson
Edward H. Tutun
Lucy Tyrrasch
Patricia A. Valluzzi
Peter Van Ness Philip
Hector Varas
Patricia W. Verin
Helene P. Victor
Marietta Voglis
Mary S. Waldron
Helen Waltuck
Patricia G. Warner
Barnet Weinstein
Davis Weinstock II
Frances and H. George White, MD
Philip D. Wilson, Jr., MD*
Susan Wray-Sullivan
Ellen M. Wright
Joel J. Zimmer
Anonymous (9)

*Deceased

Legacy Gifts

We remember with gratitude those donors whose legacy gifts were received in 2016. These generous and thoughtful donors provided over \$2.4 million in support, and each of their legacy gifts helps to ensure that our patients will continue to receive exceptional musculoskeletal care.

Hugo Andriesse
Tyrone D. Artz, MD
Leo Baer
Raymond J. Benoit
Ann F. Brogna
Edith W. Corning
Abram Elmendorf
The Ferriday Fund
Cecile Fox
Bella Frutkin
Joan Shirley Goldman
Martha Hart
Rita Hertzog
Elbert E. Husted III
Adrian H. Jackson
The Kurzman Fund
Estelle A. Manning
Caryl and Leonard Marmor, MD
James McMillen
Toufick Nicola, MD
Leigh G. Overton
Martin S. Paine Foundation
Chester Tarka
Rose M. Volpe
Therese Witcher

Wilson Society Advisory Council

The Wilson Society Advisory Council comprises a premier group of estate and financial planning specialists who advise HSS on matters related to their area of expertise. As ambassadors for the Hospital, Council members raise awareness of our mission and inspire private philanthropy that strengthens our commitment to providing the highest level of patient care today and for many years to come.

Leadership

Nancy S. Gabel
Joanne E. Johnson

Members

Jonathan Blattmachr
Gail E. Cohen
David Gerson
Lisa S. Goldman
Lynn C. Halpern
Linda B. Hirschson
Steven R. Katz
Paul S. Lee
Samuel S. Polk
Susan Porter
Sara Rabi
Paula A. Ryan
Marissa S. Tracey
Kevin A. Walsh
Linda J. Wank
Gabe M. Wolosky
William D. Zabel

Planned Giving

(Cont.)

Back in the Dentist's Chair

As a pediatric dentist, Henna DeSimone, DDS, spends her days getting in and out of a chair to examine patients. But this routine movement became difficult when Henna's left hip began to get "stuck" every time she stood up. She also experienced discomfort and a clicking sensation in her hip.

"The pain limited what I could do, and it affected my quality of life—how long I could work and whether I could go to the gym," recalls Henna, 38, director of pediatric dentistry at St. Joseph's Regional Medical Center in Paterson, NJ, and a private practitioner in Totowa, NJ. She typically works six days per week—including shifts in the OR—and enjoys taking spinning classes and working out on an elliptical trainer.

Henna saw Bryan T. Kelly, MD, Chief of the Sports Medicine and Shoulder Service, and was diagnosed with a tear in the labrum, the cartilage that lines the hip socket and cushions the joint. She had two repair surgeries at HSS—one in 2007 and another in 2011. Dr. Kelly performed both. "I feel great," says Henna. "I'd seen several orthopedists at various hospitals, but Dr. Kelly was the first to truly help relieve it."

As a medical professional, Henna has high standards for hospital care and has been consistently impressed by her experiences at HSS. Over the last decade, she has come to know not only her physicians, Dr. Kelly and C. Ronald MacKenzie, MD, Attending Physician in the Rheumatology Division, but also the staff, who make each of her visits to HSS positive experiences. "Everyone from scheduling to injections to MRIs is phenomenal," says Henna. "It takes me 10 minutes to walk down the hall to the patient room because I'm saying, 'Hello!' to everyone I know."

Thanks to the expert care she received at HSS, Henna can see her patients and exercise with little to no discomfort. "To move around unencumbered is life-changing," she says. "The procedures I had at



Henna DeSimone, DDS, is able to work and exercise with little to no discomfort thanks to two hip surgeries at HSS.

HSS have allowed me to keep up with my demanding work schedule and do so many of the things I love."

Henna's transformational experience at HSS inspired her to include a bequest to the Hospital in her will and join the Wilson Society. "When I was doing my will planning, I was thinking about which people have made a difference in my life," she says. "Both Drs. Kelly and MacKenzie—the cutting-edge work they do combined with their patient care—have been so important to me."

A bequest allowed Henna to consider more substantial support than an immediate gift. "I wanted to express my appreciation for what Drs. Kelly and MacKenzie do, and I am fortunate to be able to help them continue their work and research."

Benefactors

\$5,000,000 and above

American Iron & Metal (USA) Inc.
CA Technologies
Chase and Stephanie Coleman
The Derfner Foundation
James G. Dinan and Elizabeth Miller
Mr. and Mrs. David H. Koch
The Lauder Foundation—Leonard & Evelyn Lauder Fund
The Starr Foundation
Joan H. Tisch
Lizzie & Jonathan M. Tisch
Laurie M. Tisch
Steven E. Tisch
The Tow Foundation
Kendrick R. Wilson III

\$1,000,000–\$4,999,999

Dr. Todd J. and Barbara M. Albert
Mr. and Mrs. Peter L. Briger, Jr.
The Charina Endowment Fund, Inc.
Mr. and Mrs. Kenneth I. Chenault
Anne and Joel Ehrenkranz
Michael P. Esposito
Bernard and Cynthia Curry III
Marina Kellen French
The Gerstner Family Foundation
Kenneth C. Griffin Charitable Fund
Allison and Warren Kanders
Anna-Maria and Stephen Kellen Foundation
Pierre and Laurie Lapeyre
Marylin and Arthur Levitt

Mr. and Mrs. Thomas H. Lister
Richard and Ronay Menschel
Kathleen and Dean R. O'Hare
The O'Toole Family Foundation
Price Family Foundation
Mr. and Mrs. Elihu Rose
Lynn Shostack & Terry Moore
Jonathan Sobel and Marcia J. Dunn, MD
Mr. and Mrs. Robert K. Steel
Anonymous (1)

\$500,000–\$999,999

Bloomberg Philanthropies
Mr. and Mrs. Russell L. Carson
Mr. and Mrs. Barrie M. Damson
Katharine B. and Robert M. Devlin
David I. and Sheila Fuente
Giammaria Giuliani
Thomas L. Kempner, Jr. and Katheryn C. Patterson
Kathy and Richard Leventhal
Faith Golding Foundation, Inc.
S&L Marx Foundation Inc.
Stavros Niarchos Foundation
Mr. and Mrs. Robert H. Niehaus
Richard and Nancy Rogers
Richard Serra
Patricia G. Warner

\$100,000–\$499,999

The ALS Association, Greater New York Chapter
Dan Benton

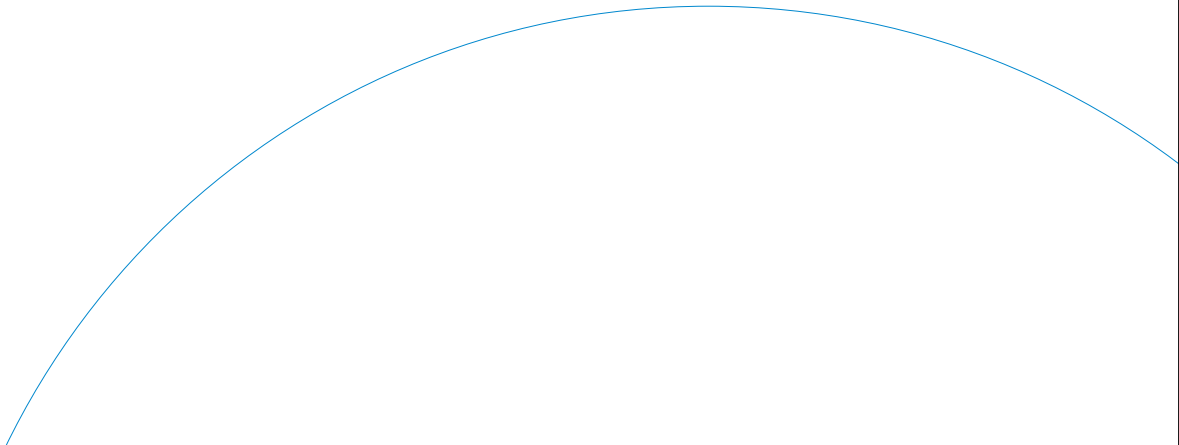
Mr. and Mrs. Gary Berman
Mr. and Mrs. James A. Block
Mr. and Mrs. Michael C. Brooks
William K. Caler
Cedar Hill Foundation
The Clark Foundation
Jacques & Emy Cohenca Foundation, Inc.

Karen Cook
Leslie Cornfeld
Margaret and Peter P. D'Angelo
Mr. and Mrs. David E. De Leeuw
Esther Diamond
Emerald Foundation, Inc.
Israel A. Englander
Gabelli Funds/Mario J. Gabelli
Judie and Howard Ganek
Mr. and Mrs. Arthur Gosnell
Kathryn O. Greenberg
Ellen and Efraim Grinberg
Sharon L. Jennette
Charles B. and Ann L. Johnson
Monica Keany and Daniel B. Zwirn
Mr. and Mrs. Theodore Kesten
Mr. and Mrs. Charles G. Koch
Mrs. Thomas G. Labrecque
Almudena and Pablo Legorreta
Michael McKeever
Robert B. Menschel
Metropolitan Life Insurance Company
The Ambrose Monell Foundation
Bruce and Wendy Mosler
The Buster Foundation/Robin Heller Moss
John H. and JoAnn B. Myers
Family of Anne Kennedy O'Neil

Mr. and Mrs. Aldo Papone
Nelson and Claudia Peltz
Michael and Marlene Perlmutter
Salvatore and Mary Louise Ranieri
The Reiss Family Foundation/
Bonnie and Richard Reiss
The Morris and Alma Schapiro Fund
Harvey M. Schwartz
Dr. and Mrs. Thomas P. Sculco
E&SS Foundation
Mr. and Mrs. Charles J. Snyder
Fern Tessler
Vital Projects Fund, Inc.
Vlad and Sandra Torgovnik
Virginia B. Toulmin Foundation
Raymond and Lucille Viault
W. Hall Wendel, Jr.
Joel Wilkenfeld
Ellen and Joe Wright
Anonymous (1)

\$25,000–\$99,999

The Ezra Abraham To Life Foundation
Access Private Duty Services, Inc.
Advanced Laboratory Services, Inc.
ALS Association National Office
Roger C. Altman
American Express Foundation
Ameriprise Financial, Inc.
AO North America Charitable Foundation
Bartlett, McDonough & Monaghan, LLP
Mr. and Mrs. Frederick C. Benenson
BlackRock, Inc.



Paul Bogrow and Linda Merinoff
Adele L. Boskey, MD
Dr. and Mrs. Barry D. Brause
Nets Basketball
Kimberly and Matthew Cantor
Mrs. Edmund N. Carpenter II
Centennial Foundation
Citi
Rona and Jeffrey Citrin
Mary K. Crow, MD
James Crown
Mary Ann Deignan
Kate and Chad Doerge
Suzy Donohue Design, LTD
Mr. and Mrs. Chris Dorr
Willis H. Du Pont
Douglas Durst
Kelly Downey, MD and Victor M.
Zayas, MD
John B. and Andra Ehrenkranz
Mr. and Mrs. Sanford B. Ehrenkranz
Alfonso Fanjul
The Fanwood Foundation
Eileen Farbman
Stephan Feldgoise and Rachel E.
Grodzinsky
Hilary and Joe Feshbach
Dr. and Mrs. Mark P. Figgie
Renee and Sy Flug
Marc Gabelli and Family
Roberta E. Gausas
General Electric Company
Mr. and Mrs. Fredric B. Gershon
Philip Goldfarb
Robert L. Goldstein
Mr. and Mrs. Bennett Golub
Lorna B. Goodman

Donald E. Graham
Steven C. Graham
Greater New York Hospital
Association
Maurice R. Greenberg
The Marc Haas Foundation
Kenneth V. Handal and Mary
Francina Golden
Henry U. Harris III
Helen S. and Edward R. Hintz
Joan and George Hornig
Jill and Ken Iscol
JPMorgan Chase & Co.
David G. Kabiller
Maria Ines Kavamura, MD, PhD
Bryan T. Kelly, MD
Theodore Kowalski
Sandra L. Kozlowski and Eduard
Reiter
Emilia A. Saint-Amand
The Ronald & Jo Carole Lauder
Foundation
Alice Lawrence Foundation
Jacob R. Leaman
Mr. and Mrs. Matthew F. LeBaron
Marilyn and Gregory Liguori, MD
Dr. and Mrs. John P. Lyden
Christina and Alan MacDonald
Madison Square Garden, L.P.
Anthony E. and Shelly Malkin
MasterCard International
Incorporated
Robert McCormack
David H. McCormick
Deirdre and Ryan McGraw
Richard McVey
Christian Meissner

Charles and Leigh Merinoff
Susan Merinoff
Ann and Alan Mintz
William and Nancy Mutterperl
Kathy and Paul Napoli
Mary Kathryn Navab
Mr. and Mrs. Stuart K. Nelson
New York Football Giants, Inc.
Gordon B. and Dailey Pattee
Dr. and Mrs. Paul M. Pellicci
The Attilio & Beverly Petrocelli
Foundation
Connie Anne Phillips
The Herbert & Lorraine Podell
Foundation
Drs. Hollis and William Potter
Michael G. Psaros
Steven Rattner
Lawrence R. Ricciardi
Rick M. and Debbie Rieder
The Rodkin Family Foundation
The Louis and Rachel Rudin
Foundation, Inc.
Mr. and Mrs. Douglas L. Sacks
Mr. and Mrs. Charles H. Salisbury
The William R. and Virginia F.
Salomon Family Foundation Inc
Oscar and Didi Schafer
Noah Schankler
Mr. and Mrs. Louis A. Shapiro
Kenneth Shubin Stein
Tad Smith and Caroline Fitzgibbons
Deirdre Stanley
Michelle and Howard L. Swarzman
Robert J. Sywolski
Greer and Alex Taylor
Tishman Speyer Properties, LP

Robert & Jane Toll Foundation
Robert Trump
Mr. and Mrs. Daniel G. Tully
The Walt Disney Corporation
George T. Wein
Judith and Harold Winters
Robert D. Yaffa
Cecile and Ezra Zilkha
Anonymous (4)

\$10,000–\$24,999

Joseph Allen
Dr. and Mrs. David W. Altchek
Andersen Tax
Baker & Hostetler LLP
Bank of America
Millard S. Bennett
Frances R. Bermanzohn
Boies Schiller & Felixner LLP
Dr. and Mrs. Mathias P. Bostrom
Louis S. Brause
Brown-Forman Corporation
The Gilbert & Ildiko Butler Family
Foundation, Inc.
Robert T. Butler
Ann and Peter B. Cannell
Sheree Chiou and Jason Kirschner
ClearSky Power & Technology
Fund LLC
Peter A. Cohen
Jonathan E. Colby
Richard Colledge
Comport Consulting Corp.
ContextMedia
Corning Incorporated
Catherine Corry and Derek McNulty

Wilbur A. Cowett
Maryann Coyle
Crystal & Company
W. R. Dahl
Francis O. Day
Dr. and Mrs. David M. Dines
Joshua S. Dines, MD
Heartfelt Wings Foundation
Edgewood Management LLC
The Endeavor Foundation
Ellen and Michael Esposito
Excel Sports Management
First Data Corporation
Flipp Corporation
Mrs. Mary Ann Fribourg
Fried, Frank, Harris, Shriver &
Jacobson
Mr. and Mrs. E. Maxwell Geddes
General Electric Foundation
David J. Gilbert
Peter Gleason
Joseph Gleberman
Lisa A. Goldstein
Hana and Allan Green
Grifols USA, LLC
Steven B. Haas, MD
David T. Hamamoto
Leita & William Hamill Family
Foundation
Kilian Hennessy and Elisabeth
Jones-Hennessy
Drs. Robert and Stephanie
Hotchkiss
Henry H. Hoyt
Russel C. Huang, MD
Innovatix, LLC
Mr. and Mrs. Thomas C. Israel

Dr. and Mrs. Lionel B. Ivashkiv
Virginia James
Johnson & Johnson
Colleen T. Joyce
Lana Kang, MD
Dennis M. and Barclay Kass
Kaufman Borgeest & Ryan LLP
Mr. and Mrs. James C. Kautz
John P. Khoury
Kim and Sean Klimczak
Charles A. Krasne
Mr. and Mrs. Peter Kraus
Bernard and Bonnie Krupinski
Dr. and Mrs. Joseph M. Lane
Dale J. Lange, MD
Matthew Lauer
Mr. and Mrs. H. Irwin Levy
Jonathan S. Linen
Michael D. and Barbara Lissner
Mr. and Mrs. David M. Madden
Mrs. Marjorie A. Matheson
McDermott Will & Emery
Charitable Foundation
Mary and Paul McEvoy
Gregory McLaughlin
Brian J. McNally
McNamara Purcell Foundation
Richard J. Meyer
Montgomery, McCracken, Walker
& Rhoads, LLP
C. Jay Moorhead Foundation
Mr. and Mrs. George K. Moss
Everett and Nancy Novak
Dr. and Mrs. Martin J. O'Malley
Stephen and Violeta Paluszek
Paul, Weiss, Rifkind, Wharton &
Garrison LLP

Alexander and Anne Phillips
Teresa Cecilia Pinson Corona
Power Corporation of Canada
Proskauer Rose LLP
Paul E. and Patti Purcell
Quinn Emanuel Foundation
Paul E. Raether
RAM Consulting Group, LLC
Dr. and Mrs. Anil S. Ranawat
Dr. and Mrs. Chitranjan S. Ranawat
Red Bull New York, Inc.
Jacob L. Reiss Foundation
Mr. and Mrs. Jeffrey A. Rosen
The Leo Rosner Foundation, Inc.
Richard Rothman and Melissa
Salten
Miles L. Rubin
Mr. and Mrs. Claudio Sauer
Sectra North America, Inc.
William L. Selden
The Nina & Ivan Selin Family
Foundation
Alana Serota, MD and David
Mayman, MD
Holly S. Sillau
Morton F. Silver
W. R. Simmons
The Sidney, Milton, and Leoma
Simon Foundation
Manon and Ian Slome
Jeffrey Smith
Mr. and Mrs. Thomas W. Smith
Ruth Sokenis
The Honorable Joyce L. Sparrow
Mr. and Mrs. Neil Postighone
Howard M. Stein
Kenneth L. and Nancy C. Stein

Steriltek Consultants/Steris
Corporation
Steven F. Sterling
Donald B. Stott
Karen Lin, MD and Edwin P. Su, MD
Sunbelt Beverage Co, LLC
Mr. and Mrs. Joseph Taub
Margaretta Taylor
Katrin Theodoli
Robert E. and Donna C. Tompkins
Elizabeth and Michael Varet
Vasculitis Foundation Research
Fund
VaynerMedia, LLC
Visiting Nurse Service of New York
Stephen D. and Laura Wehrle
Weill Cornell Medical College
Mr. Robert F. Weinberg
Mrs. Sue Ann Weinberg
Sara and Scott Weiner
Mr. and Mrs. John F. Welch
John E. Welsh III
Elizabeth G. Weymouth
William F. and Barbara Whitman
Dr. and Mrs. Roger F. Widmann
McCartney Wilkins
Jon and Abby Winkelried
WIX.COM LTD
Mr. and Mrs. Leonard Yablom
Mr. and Mrs. Roy J. Zuckerberg
Anonymous (4)

\$5,000–\$9,999

Eduardo Abush
Mr. and Mrs. Andrew E. Adelson
Robert Alexander

Answorth A. Allen, MD and Rae Wright-Allen, MD	Ioana Ertegun	Riad Kaylani	Rock G. Positano, DPM
Bradley and Nisa Amoils	Anne E. Estabrook	The Kernan Fund	Michael J. and Vikki Price
Arthrex, Inc.	Todd Fasanella	Hans Kertess	PricewaterhouseCoopers LLP
Richard K. Barnhart	Michael and Beth C. Fascitelli	Kirkland & Ellis LLP	The Prospect Hill Foundation Inc.
Gerald C. Benjamin	The Ferriday Fund	Sheila and Michael Klein, MD	John Quisenberry
Edgar and Gail Berner	Robert S. and Ellen Flug	Steven Kotler	Catherine M. Randolph
Richard Bhullar	Charlotte Ford	Janet Langhart-Cohen	Bonnie Reichman, MD
Mr. and Mrs. Ralph J. Bianco	Joan Freeman	Elizabeth Lawrence	Patricia Reimerdes
Bruno F. Bich	Mr. and Mrs. Robert A. Friedman	Dr. and Mrs. David S. Levine	Josh Resnick and Danyelle Freeman
Billing Services Inc.	Richard S. and Kathy Fuld	Irwin Levine	Mr. and Mrs. David Richards
Friedrich Boettner, MD	Michael Gad Emerlad	Lexington Insurance Company	Mr. and Mrs. James S. Richman
Frank A. Bonsal	Stephen G. Geiger	Limacorporate Spa	Donald F. Roach
Bruce D. Bottomley	Patrick A. and Elizabeth Gerschel	Pete Lyon	Laura and Steve Robbins
George T. Boyer	Richard J. Gilder and Lois Chiles	Stacey and Philip Malakoff	Dr. and Mrs. Matthew M. Roberts
Rita S. Brause	Gozdecki, Del Giudice, Americus, Farkas, & Brocato LLP	Robert Marx, MD and Rena G. Krasnow	Scott A. Rodeo, MD and Christine Frissora-Rodeo, MD
Roberta C. Brause	Joan Granlund	Virginia K. and William B. Marx	Jeffrey Rose
David R. and Kathleen H. Brewer	Jo A. Hannafin, MD and John Brisson, Esq.	Marie L. Matthews	Rebecca and Peter Rosow
Kerri Bruderman	Stephen Hanson	Rosana S. Mazzia	Clifford Ross
Daniel A. and Carole Burack	Eugenie C. Havemeyer	Medtronic	James Ruddy
Stephen B. and Gretchen Burke	Richard L. Haydon	Mr. and Mrs. Eugene Mercy	Jack Saltz
James J. Callanan	Robert H. Hershan	Mr. and Mrs. Stephen C. Mills	Corrente Schankler
Richard S. Chargar	David R. Hilty	Jamie Nicholls	Stephen and Susan Scherr
Judith Chasanoff	David R. Hilty	Robert Niecestro	Steven Schonfeld
JeMe Cioppa-Mosca	Frances Holman	Mr. and Mrs. Raj K. Nooyi	Sedgwick and Barbara Ward
CITI Bank, N.A.	Mrs. Michael W. Huber	Patrick H. O'Connell	Marc A. Schwartz
Dr. and Mrs. Paul M. Cooke	Jennifer Huntley	Norah O'Donnell	Mary J. and Frank Semcer
Alexander and Erica Crisses	Edward S. and Caroline H. Hyman	Patrick F. O'Leary, MD	Karen Silverman
James F. Curtis, III	Frederick L. Jacobson	Mr. and Mrs. George D. O'Neill	Henry O. Smith
Danow, McMullan & Panoff, P.C.	Reuben Jeffery	Michael Paasche	Howard and Sarah Solomon
Mrs. Frances Dibner	Robert W. Johnson IV	Dr. and Mrs. Simon C. Parisier	Mr. and Mrs. Richard H. Solomon
Trent Dickey	Donald Jonas	Pascucci Family Foundation	James Stanton
Mr. and Mrs. Eric S. Dobkin	The Charles and Mabel P. Jost Foundation Inc.	Andrew D. Pearle, MD	Robert M. Steinberg
Mrs. Colette M. Douglas	Susan B. Kane	Norman L. Peck	Steiner Sports Memorabilia, Inc
Jay Eisenhofer	Stuart Z. Katz	Elizabeth S. Pforzheimer	Brenda Neubauer Straus
Joyce and Paul Emposimato	George S. Kaufman	Mr. and Mrs. Leon B. Polsky	Richard Stravitz
enCourage Kids Foundation		Susan Porter	

Mr. and Mrs. Roger L. Strong
 Stryker Endoscopy
 Bill and Carolyn Stutt and Carwill
 Foundation
 William J. Sullivan
 Ram Sundaram
 Henry Sweetbaum
 Mr. and Mrs. William Tatlock
 The Phillips Group - TPG
 Architecture
 Rosanna and John Troiano
 Drs. Vijay and Dilshaad Vad
 Herbert T. Vederman
 David A. Viniar
 Mr. and Mrs. Joseph V. Vittoria
 Ursula Von Rydingsvard
 Michael and Michelle Walrath
 Dr. and Mrs. Russell F. Warren
 Philip and Allyson Waterman
 The Howard Bayne Fund
 Rosemary and Fred Weintz
 Candace Weir
 William C. and Barbara D. Weldon
 Mr. and Mrs. Joseph Werner
 Geoffrey H. Westrich, MD
 Katharine Weymouth
 Todd and Ginger Whitenack
 Denise F. Williams
 Tom Wolfe
 Dr. and Mrs. Timothy M. Wright
 Hansjoerg Wyss
 Jeff and Janine Yass
 Barbara and Mark Zand
 Anonymous (3)

\$1,000–\$4,999

Michelle L. Abbey
 Robert S. Adelson
 Dean S. and Susanna Adler
 Burton Albert
 Rachel Albert
 Michael M. Alexiades, MD and
 Patricia Buonocore, MD
 American Endowment Foundation
 Robert N. and Debbie Appelbaum
 Jeffrey Applegate
 John H. and Diane Asiel
 Allison Aston
 Robert E. Atkinson Family Fund
 Atlas Settlement Group, Inc.
 Jeffrey Baena
 Gregory L. Baird
 George Banks
 Lindsey D. Barnett
 Catherine Barton
 Dorothy Batten
 Frederick W. Beinecke
 John B. Beinecke
 Stephen F. and Marlene B. Bell
 Arthur Bellis
 The Belsky Family Foundation
 Simon Bergson
 Caroline Berley
 Rhoda M. Berley
 Brian Berman
 Gene Bernstein
 Daniel Berry, MD
 Max N. Berry
 Robert M. and Jeanette Bersh
 Anthony W. Besthoff
 Theodore M. Bier

Gail Binderman
 Dana Birnbaum
 Paul Bishop
 Charles W. Bisset
 Robert W. Blake
 Christina Blaustein
 Barry L. Bloom
 Gerald Blum
 Richard S. Bockman, MD
 William and Angela Bohn
 Willard S. Boothby
 Robert Borkenstein
 Ms. Selma S. Bornstein
 Roy Bostock
 Boston Services, LLC
 Susan and Richard S. Braddock
 Breakthru Beverage Group
 Douglas Broadwater
 Meredith and Tom Brokaw
 Tristram A. Brooks
 William Lee Lyons Brown
 Joel Buchman
 Walter W. Buckley
 Ann L. Bullinger
 Dr. and Mrs. Robert L. Buly
 Joy Bunson
 Susan Burch
 Peter and Judith Buscemi
 Paul E. Butterfield
 Mr. and Mrs. Arthur E. Byrnes
 Marilyn and Robert Callander
 Dr. and Mrs. Frank P. Cammisia, Jr.
 Barbara M. Cantacuzino
 Margaret H. Cantwell
 Anthony A. Capetola
 Bruce Carbonari
 Cardoza Corporation

William and Kate Carey
 Mr. and Mrs. Edmund N.
 Carpenter II
 Andree Carr
 Ms. Joan-Carol Carrafiello
 Mary Casey
 Leone E. Caspler
 Michael Cassidy
 Ms. Angelina Cassone
 Gale H. Castro
 Hyun Susan Cha, MD
 Sandra Chapin
 Qi Chi
 Andrew A. Chisholm
 Mr. and Mrs. Henry Christensen III
 Theodore Chu
 Dr. and Mrs. David H. Clements
 Eileen A. Clinton
 Abby J. Cohen
 Marilyn B. and Stanley Cohen
 Rod Colburn
 Joanna L. Cole
 Mr. and Mrs. Geoffrey O. Coley
 Diana F. Colgate
 Margaret L. Cone
 Consolidated Edison Company of
 New York
 Catherine Constantino
 Construction Contractors of NY Corp.
 Kevin J. Conway
 Dr. and Mrs. Frank A. Cordasco
 Dr. and Mrs. Charles N. Cornell
 Brian Cosgrove
 Mr. and Mrs. George S.
 Coumantaros
 Stephen H. Cowen
 Charles E. and Laura E. Coyne

Chad M. Craig, MD
Benjamin F. Crane
Donald Crawford
Andrew and Abby Crisses
Patrick Crosetto
Michael B. Cross, MD
Mr. and Mrs. Richard Crowley
Lisa Cruikshank
Peter Culbertson
Edgar M. Cullman
Matthew E. Cunningham, MD, PhD
Sean Daly
Mrs. Charles A. Dana
Michael J. Dansky
Suzanne Dawson
Charles L. DeFanti
Ambassador and Mrs. Enriqueillo
Del Rosario
Dr. and Mrs. Jonathan T. Deland
Eugenia Delbridge
Janet Demuth
John A. and Valaer V. Goodrich
DePuy Spine, Inc.
Thomas Deutsch
Hester Diamond
Edward F. DiCarlo, MD
James F. Dicke
Amy Dieterich
Deborah and Harold Dietz
Gregory S. DiFelice, MD
Dominic A. DiNapoli
Meredith and Carl Doerge
Michael S. Dondelinger
Mr. and Mrs. Joseph W. Donner
Dr. and Mrs. Larry Dorr
Mr. and Mrs. Robert N. Downey
Mark C. Drakos, MD

Stephanie Drescher Gorman
Jean Pierre Dreyfus
Drinker Biddle & Reath LLP
Michael Dubin
William L. Duffy
Ariel Dujovne
Thomas E. Durovsik
Claire V. Eagan
Eagle Communications
Mary Jean Eastman and Edward
Mills
Fred and Joanne Ehrlich
John and Jeanne Elderfield
Dr. and Mrs. Jack Ellenberg
Marjorie Ellenbogen
Edward E. Elson
John Englehart
Epic
Lisa and Christopher Ericco
John and Deborah Lee Evangelakos
Peter Ezersky
Peter and Helen Fahey
Michael A. Falcone
Mr. and Mrs. Michael S. Falk
Fred Fallek
Jennifer E. and John Farrell
Eric C. Fast
Willa Fawer
Dr. and Mrs. Stephen Fealy
Stephanie Fein
Joseph H. Feinberg, MD
Mrs. Edgar C. Felton
Massimo Ferragamo
David J. Field
Mark and Lori Fife
Jonathan Fine
Linda Fiore

Michael D. Fishbein
Mr. and Mrs. Brian D. Fitzgerald
Arthur Fleischer
Lawrence and Stephanie Flinn
James T. Flynn
John G. and Andrea Forbes
Malcolm S. Forbes
Kenneth A. Forde
Mr. and Mrs. Leonard Formato
Gregg L. Foster
Edward M. Fox
Mr. and Mrs. Austin T. Fragomen
Austin T. Fragomen, MD and
Ivette Mayo
Seth E. Frank
Dolores Freidenrich
The Frye Revocable Family Trust
Sheree L. Funsch
Stephen Furnary
Ronald R. and Marianne Galione
Arthur J. Gallagher & Co.
Sergio J. Galvis
Robert Garcia
Kevin L. Garvin
Anna T. Gary
Anthony P. Gentile
The Georgen Foundation, Inc.
Katherine Georgi Lauprete
David B. Gerstein
Ilene Giaquita
Rodney Gobble
James W. Giddens
Stephen Gliatta
Stephanie J. Goldberg
Neil J. Goldmacher
Howard Goldschein
Steven Goldstein

Elan Goldwyn
Alejandro Gonzalez Della Valle, MD
Peter W. Gonzalez
James C. Goodale
Drs. Susan M. Goodman and
Bruce Cronstein
Paul Gordon
Valerie Gordon-Johnson
Ruth L. and David S. Gottesman
Patricia Gottesman
Mr. and Mrs. Marc Gould
Patricia Grad
Michael Sean Grant
Thomas W. Grant
Catherine A. Gratz-Griffin
Timothy M. Greco
Catherine and Alan Green
Dr. and Mrs. Daniel W. Green
David Greenbaum
Leo M. Greenberg
Greenlight Capital
Mr. and Mrs. Kirk P. Gregg
Jody and Richard Grobman
Mrs. Henry A. Grunwald
Megan and Lawrence V. Gulotta, MD
Ashley Gundersen
Semih Gungor
Sarina W. Gwirtzman
Robert J. and Joanie B. Hall
Charles Hamlin, MD
John L. Hardiman
Mr. and Mrs. Jack B. Harris
William B. and Anne Harrison
Andrew Hart
Michael J. Hartnett
James Hauslein
Gale Hayman

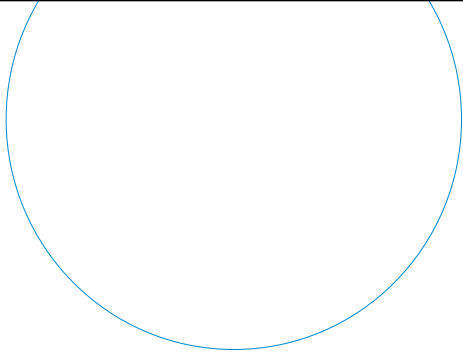
D. Thomas Healey	Nancy Karetsky	The Kurzman Fund	Sally W. Lynch
Drs. John H. Healey and Paula J. Olsiewski	Glen Kashuba	Randy and Brian Kwart	Jennifer B. Lynn
Laura Heintz	Charles and Patty Kaufmann	Barry and Jill Lafer	Donna MacCrae
Mr. and Mrs. Samuel Heyman	Patricia P. Kean	Cynthia Lam	Neil G. MacFarquhar
Jay F. Higgins	Megan Kearney	Audrey D. Landers	Dr. and Mrs. John D. MacGillivray
Jonathan J. Hirtle	Lilli Keene	William Landman	Gunter Blobel
David H. Hofmann	Laurie Kefalidis	Eric Lane	Doreen H. Molloy
Shauna Holiman	Jayne T. Keith	Andrew Lankler	Camille Manning and Jean Luc Journet
Joyce and John Holman, Jr.	Anne Kelly, MD	John W. Lapsley	Melissa Marantz Nealy Foundation
Jeffrey and Marjorie Honickman	Mr. and Mrs. Thomas J. Kelley	Richard J. Lauria	Susan and Morris Mark
Marie-Jose Hunter	James L. and Cynthia Kempner	Mrs. Carlene Lawrence	Jerome Markowitz
Carroll T. Hurlburt	John G. Kennedy, MD	Starling Lawrence	Seymour Marks
Janice D. Ichel	Han Jo Kim, MD	Laurie Z. and David Lederman	Ronen Marmur
Dr. and Mrs. Allan Inglis	Edward C. McGunnigle	James S. Lee	Michelle Marra
Paul and Lynn Ingrassia	Harold J. Kingsberg	Mrs. Isabelle R. Leeds	David Martinelli
Cornelia S. Ionescu	Jonathan S. Kirschner	Mrs. Isabel B. Leib	Robert and Mary Jane Marvel
Robert R. Isen	Susan Kissane	U.S. Athletic Training Center	Susan T. Marx
Theodore J. Israel	Saul and Carolyn Klabin	Gina Lepore	Stephen Massimi, MD
Craig S. Ivey	Erika Klauer	Ross and Stacey Levin	Matrix Mechanical Corporation
Anne Izzillo	Alan Klein	Mrs. Wilbur A. Levin	Kathleen T. May
Michael I. Jacobs, MD	Richard J. Klein	Mr. and Mrs. Herbert I. Levitt	Michael J. Maynard, MD
Jamie A. Jacobson	Judith A. Kleiner	William J. Levy	Stephen Mazoh
Andrew Jaglom	Steve Klinsky and Maureen Sherry	Melvyn Lewinter	Donald Mc Conville
Neil and Sarita N. Jairath	William J. Kneisel	Aliza and David Licht	Dolores L. McCall
Kurt and Holly Johnson, MD	Irene Koch	Christopher T. and Robin E. Linen	Richard R. McCormack, MD
Linda Johnson	Anna Kogan	Linmar Construction	James P. McCready
William Josephson	Konica Minolta Business Solutions, Inc.	John C. L'Insalata, MD	Constance B. McGillicuddy
Anju and Anil Joshi, MD	The Monteforte Foundation	Daniella Lipper	The MCJ Amelior Foundation
Joanne T. Juckiewicz	Lewis Korman	Kenneth Lipper	Robert J. McKay
K.O. Media and Marketing, LLC	Chizuko T. Korn	Howard A. Lipson	Matthew McKenna
Dale Kahn	Chris Koundourakis	Wendy L. Lobel	Mary Anne McLaughlin
Kurt and Amy Kalm	Mark Kovinsky	Mr. and Mrs. Walter F. Loeb	Laura McPhail
Howard and Debby Kaminsky	Mark Kramer	Baron Lonner	Mr. and Mrs. Gregor Medinger
Steven A. Kandarian	Stephen J. Krass	Diana Lopo	Paul V. Meichelbeck
The Kandell Fund	Lynn K. Kroll	Diane and Robert Lorelli	Richard J. Melchner
Charles Kaplanek	Liz Kurtin-Steinberg	Donald F. and Marianne Lucey	Andrew J. Melnick
		Dr. and Mrs. Gregory E. Lutz	

Anthony Menichino
Robin Merle and Douglas Ofiara
Christy Messina
Joann L. Messina
Mr. and Mrs. Ricardo A. Mestres
Metropolitan New York Library
Council
Nina A. Milanos
Paul Miles
Anne C. Miller
Brett Miller
David S. Miller
Henry S. Miller
Karen Miller
Douglas N. Mintz, MD
Joseph Mitola
Achim Moeller
Elizabeth and Peter J. Moley, MD
Frank and Robert Molfetta
Dan T. Moore
John L. Morace
Dan Moran
Nitika Moran
Richard S. Morrison
Mr. and Mrs. Lester S. Morse
Mr. and Mrs. Charles H. Mott
Mr. and Mrs. Kenneth F.
Mountcastle
Esra and Clark Munnell
Marian B. Munson
Edward Munves
National Installations Inc.
Yael Natori
Robert A. Nau
James L. Nederlander
Thomas J. Neff
Jamie M. Nelson

Richard V. Nelson
Nicole Nevadunsky
D. Dennis Neveling
The New York Mets Foundation
Ann and Robert Newburger
Pamela J. Newman
Mr. and Mrs. Douglas R. Nichols
Erik A. Nicolaysen
Heidi Nitze
NuFACTOR
Richard B. Nye
Gary Oatey
Objet Eternel LLC
Kathleen O'Brien
Patricia M. O'Brien
Ellen and Edward C. Oelsner
Philip Olsson
William and Cathy Onufrychuk
Kim Ostheimer
Out of Home America/Wilkins Media
Phyllis Palmer
Deven Patel
The Patricof Family
Katherine Peabody
Jeffrey Peek
Annie W. Pell
Joseph Penniplede
Mr. and Mrs. James Perakis
Joseph R. Perella
Michael A. Perna
Mr. and Mrs. James Pfohl
Barnet I. Phillips
Phoenix Medcom, Inc.
Helen C. and Robert Pilkington
Dennis Pinto
Laurie Ann and Michael
Piotrkowski

Ronni and Martin Pitiger
Vincent F. Pitta
Roy Plum
Joseph and Cheryl R. Poblner
Robert A. Podolsky
Anupama Poole
Premier Benefit Plans, Inc.
Joel Press, MD
Dr. and Mrs. Ivin B. Prince
Pryor Cashman LLP
Robert Quinn
Dr. and Mrs. Amar S. Ranawat
Cathy J. Raphael
R. Frederic Rasch
Dr. and Mrs. Bernard A. Rawlins
Mr. and Mrs. Bradley Razook
Andrew Rechtschaffen
Phyllis G. Redstone
Kathleen Reed
Christina Reik
Judson P. Reis
Jennifer Rentas
Kathleen Rhatigan
Janet Riccio
Dr. and Mrs. Daniel S. Rich
Frank E. Richardson
Daniel I. Richman, MD
RidgeWorth Investments
Rigid Electric, Inc.
Schuyler C. Riley
Joan M. and Victor M. Rivas
Allan J. Robbins
Jules Robbins
David Rockefeller
Marian Rocker
John A. Rodger

Jose Rodriguez, MD and Ileana
Vargas-Rodriguez, MD
Richard K. Rogers
Michael S. Rome
Paula Root
Robert J. Rosan
Richard A. Rose
Mr. and Mrs. Benjamin M. Rosen
Brett Rosen
Michael Rosen
Robert L. Rosen
Wendy H. Rosen
Aviva and Benjamin A.
Rosenberg, MD
Daniel H. Rosenblatt
Carol Rosenwald
E. John Rosenwald
Mrs. Miriam K. Rothenberg
William W. Rowley
S. Robert Rozbruch, MD
Errol M. Rudman
Hollis F. Russell
Linda A. Russell, MD and Carmelo
Triscari
Paula A. Ryan
Mr. and Mrs. Matthew Sabatine
Andrew Sabin Family Foundation
Gillian A. Salama-Caro
Thomas Salice
Jane E. Salmon, MD and
Jerry Gliklich, MD
Dr. and Mrs. Eduardo A. Salvati
Andrea and Lester Samuels
Mr. and Mrs. Martin Sands
Arun Sarin
Robert Savitt
Anthony M. Saytanides



Linda B. Schaps	Laurence R. Smith and Margaret	Yusuf Tatli	Sedgwick Ward
Dr. and Mrs. David M. Scher	Saba Smith	James H. and Valerie Anne Taylor	David and Nancy Webb
Mr. and Mrs. Norman Scher	Sherrie Smith	Nancy B. Taylor	Mr. and Mrs. Bradford G. Weekes III
Susan J. Scher and Allison Grover	Frederick Snare	TD Bank N.A.	Drs. Andrew and Nancy Weiland
Sandpiper Fund	Richard Solar	Mr. and Mrs. Walter C. Teagle III	Ronald E. Weinberg
Joyce E. Schiavone	Amy Solas	Larry Thees	Barnet and Sandra Weinstein
George W. Schiele	Peter J. and Susan Solomon	Julia D. Thieriot	James O. Welch
Mrs. Irwin Schneiderman	Robert J. Solomon	Thomas Family Foundation	Walter J. and Lynn P. Wencak
Susan B. Schnellwar	Alan Solow	Melissa A. Thomas	Daniel J. Werther
Ingrid L. Schoch	Sony Corporation of America	Craig Thompson	Edward T. White
Eric Schwartz	Isaac R. Souede	Edward Thompson	Dr. and Mrs. Thomas L.
Mr. and Mrs. Robert Schwartz	Michael Sovern	Barbara Tober	Wickiewicz
Mary V. Scott and Jim V. Maher	Central Parking Corporation	William M. Tomai	Lawrence Wilens
Carlton and Lucille Sedgeley	Marcia Spada	Peter A. Tomback	Mr. and Mrs. Thomas Wilkins
Seventy Lincoln Avenue, Inc.	Specter Foundation	Annette Topilow	Alexandra Wilkis Wilson
Ormond Sexton	Moira and George Spencer	Mr. and Mrs. Paul R. Tregurtha	Jeffrey P. Williams
Shirley Shapiro and Elaine Appellof	Walter C. Squire and Sara	Mr. and Mrs. William B. Troy	Mr. and Mrs. Patrick Wilson
Mary Jo and Ted Shen	Abramson	Turner Construction Company	Anna Winderbaum
Ronald M. Sherman	Adam and Judy Starr	Anthony Unger, MD	Dr. and Mrs. Russell E. Windsor
The Susan Stein Shiva Foundation	Mark Stein	Michael Urciuoli	Dr. and Mrs. Scott W. Wolfe
Beth E. Shubin Stein, MD	Hubert Stern	James R. and Nancy Utaski	Mr. and Mrs. James D. Wolfensohn
Alan Shuch	The Sternlicht Family Foundation	Robert K. Utley	Meg Woodhouse
Robin L. Sieranski	Mr. and Mrs. Fred C. Stoll	Sigrid Van Eck	James I. Wyer
Amy Sills	Elizabeth A. Straight	Mr. and Mrs. William J. Vanden Heuvel	James B. Wyss
Phyllis A. Silver	Donald W. Strang	Margaret and Ashok Varadhan	Betty G. Young
Ms. Patricia Bleznak Silverstein	The Bachmann Strauss Family	Gary Vaynerchuk	John Young
Talbott and Carter Simonds	Fund, Inc.	VCC, Inc.	Pegi Young
Dr. and Mrs. Alex C. Simotas	Sabrina M. Strickland, MD	Marilyn Vecchiotti	Roselle K. Zabar
Mark J. Singer	Alison Strong	Jeffrey L. Verschleiser	Dorothy Zeifer
Ernest L. Sink, MD	Stuart Subotnick	Linda and Robert Vilensky	Annie Zheng
John T. Sinnott	Sullivan, Cotter and Associates, Inc.	Mr. and Mrs. Thomas Vogel	Mr. and Mrs. Joel J. Zimmer
Mitchell Slater	William B. Summers	Beth Ann and John Voulgaris	Heather Zuben
Thomas F. Slater	Xiuwen Sun	David S. and Nicole Wachter	Soofian Zuberi
Myles J. Slosberg	Margie Sung and Mike	The Wagner Family Foundation Inc.	Mollie Zweig
Mrs. Louis Smigel	Schmidtberger	Martin J. Waldbaum	Anonymous (2)
Barrie C. Smith	Steven Tananbaum	Robert J. Waldele	
Gerard L. and Isabel R. Smith	Mr. and Mrs. Scott J. Tarte	Lisa J. and Mark A. Walsh	

Officers & Board Members

April 1, 2017

Officers

Chair

Kendrick R. Wilson III

Vice Chairs

Michael Esposito

Thomas Lister

Deirdre Stanley

President and Chief Executive Officer

Louis A. Shapiro

Surgeon-in-Chief and Medical Director

Todd J. Albert, MD

Executive Vice President and Chief Operating Officer

Lisa A. Goldstein

Executive Vice President and Chief Financial Officer

Stacey L. Malakoff

Executive Vice President, Chief Legal Officer and Secretary

Irene Koch, Esq.

Chairmen, Emeriti

Winfield P. Jones

Richard L. Menschel

Dean R. O'Hare

Aldo Papone

Board of Trustees

Todd J. Albert, MD

James M. Benson

Daniel C. Benton

Herbert Black

Michael C. Brooks

Kathryn Chenault

Charles P. Coleman III

Leslie Cornfeld

Mary K. Crow, MD

Cynthia Foster Curry

Barrie M. Damson

James G. Dinan

Anne Ehrenkranz

Michael Esposito

Marina Kellen French

Steven B. Haas, MD

David L. Helfet, MD

Robert N. Hotchkiss, MD

Lionel Ivashkiv, MD

Craig S. Ivey

Winfield P. Jones

Warren B. Kanders

Monica Keany

Bryan T. Kelly, MD

Thomas J. Kelly, MD, PhD

David H. Koch

Laurie Hodges Lapeyre

Pablo Legorreta

Lara R. Lerner

Kathy Leventhal

Marilyn B. Levitt

Thomas Lister

Alan S. MacDonald

Richard L. Menschel

Mary Kathryn Navab

Dean R. O'Hare

Terry O'Toole

Aldo Papone

Michael L. Parks, MD

Gordon Pattee

Steven Rattner

Susan W. Rose

Thomas P. Sculco, MD

Louis A. Shapiro

Jonathan Sobel

Deirdre Stanley

Robert K. Steel

Patricia G. Warner

Sanford I. Weill

Kendrick R. Wilson III

Ellen M. Wright

Robert D. Yaffa

Life Trustees

Loring Catlin

Kathryn O. Greenberg

James R. Houghton

Carl B. Menges

Samuel S. Polk

Charlton Reynders, Jr.

Katherine O. Roberts

Donald Stone

Russell F. Warren, MD

Torsten N. Wiesel, MD

Mrs. Ezra K. Zilkha

Board of Advisors

Chair

Robert D. Yaffa

Vice Chair

Katherine Doerge

Founding Member

Kenneth V. Handal

Bradley Amoils

Barry L. Bloom

Peter L. Briger, Jr.

Jeffrey B. Citrin

Mary Ann Deignan

Katherine Doerge

John B. Ehrenkranz

Sanford B. Ehrenkranz

Stephan Feldgoise

Marc Gabelli

Rob Goldstein

Cynthia Golub

Lorna B. Goodman

Rachel Grodzinsky

Kenneth V. Handal

Henry U. Harris III

Holly Johnson, MD

Kurt Johnson

Elisabeth Jones-Hennessy

Maria Ines Kavamura, MD, PhD

Sandra Kozlowski

Matthew F. LeBaron

David M. Madden

David H. McCormick

Stephen C. Mills

Connie Anne Phillips

Rick Rieder

Douglas L. Sacks

Kenneth Shubin Stein, MD

Tad Smith

Robert D. Yaffa

Advisor Emeritus

Earl G. Graves, Sr.

Credits

Executive Editorial Board

Todd Albert, MD
Mary K. Crow, MD
John Englehart
Lionel Ivashkiv, MD
Louis A. Shapiro

Executive Editor

Rachel Sheehan, MA, MBA

Editor-in-Chief

Deborah Pike Olsen

Writers

Beth Howard
Robin Frank

Design

Suka Creative, Inc.

Printing

DG3

Photography

John Abbott
Robert Essel
Ted Horowitz

Horizon is published by the Communications Department,
Hospital for Special Surgery, 535 East 70th Street,
New York, NY 10021. 866.976.1196

Hospital for Special Surgery is an affiliate of
Weill Cornell Medical College.

©2017 Hospital for Special Surgery. All rights reserved.

HSS | Hospital for Special Surgery

New York • Connecticut • New Jersey • HSS.edu

