

Discovery to Recovery

CLINICAL AND RESEARCH HIGHLIGHTS AT HSS | SPRING 2012

HOSPITAL
FOR
SPECIAL
SURGERY



Safety is top priority for our surgical team, which operates within a Plexiglas enclosure with laminar airflow to reduce infection.

bloodstream – a substance that is released as part of the inflammatory response to surgery. Keeping IL-6 levels low is important because IL-6 activates specific clot-forming markers, so reducing these levels can lead to a reduction of blood clot formation. In the current study, levels of these clot-forming markers are measured in knee replacement patients receiving hydrocortisone therapy over a 24-hour period, beginning two hours before surgery.

Unexpected Benefits

Says Dr. Jules-Elysee, “In addition to potentially interrupting the cascade of reactions that results in clotting, short-term low-dose hydrocortisone therapy has been shown to result in less post-operative pain and fever. It may also protect against lung injury, another potential complication.” The physicians also observed a trend toward an increase in the body’s natural ability to prevent blood clots, called fibrinolysis, and improved range of motion in the knee following surgery. “Collaborative studies like these reflect the medical team’s commitment to safety,” says Dr. Sculco. “They answer practical clinical questions, which benefits patients greatly.” ●

Elevating Surgical Safety

Each year, HSS surgeons perform some 26,000 surgeries, including nearly 4,000 knee replacements. Safety is our top priority, and a specialized multidisciplinary surgical team follows treatment protocols and best practices to minimize the risk of post-operative complications, such as blood clots in the veins of the legs, a complication that can occur after knee replacement surgery.

A clot generally remains in the leg veins, but may break free and reach the lungs, where it becomes a potentially dangerous pulmonary embolism. Usually, blood clots are prevented with blood thinning medications (anticoagulant therapy), compression devices, and getting out of bed soon after surgery.

Committed to continuously improving surgical safety, HSS anesthesiologists and orthopedic surgeons are collaborating on several studies to further reduce the risk of clot formation.



Anesthesiologist Kethy Jules-Elysee, MD

Reducing Clotting Risk

HSS orthopedic surgeon Edwin Su, MD, HSS anesthesiologist Nigel Sharrock, MD, and colleagues are

comparing markers of blood clot formation in three different groups of patients: those undergoing simultaneous bilateral (double) knee replacement, single total knee replacement, and partial knee replacement. Their work builds on previous evidence that showed an increased risk for clotting with double knee replacement versus single replacement surgery. “If our findings show a reduced risk for clots with partial knee surgery as well, we may be able to use less potent anticoagulant therapy with these patients,” says Dr. Su. Physicians strive to use the lowest possible effective dose of anticoagulant therapy to minimize the risk of excessive bleeding that can occur with these medications.

Hydrocortisone May Help

In a separate study, HSS anesthesiologist Kethy Jules-Elysee, MD, working with a team including Surgeon-in-Chief Thomas P. Sculco, MD, is exploring the role of low-dose hydrocortisone treatment in reducing the risk of post-operative clot formation in patients with knee replacement. In an earlier stage of their research, the team found that low doses of hydrocortisone controlled levels of IL-6 in the

HSS Earns Magnet Award for Excellence

In November 2011, HSS received its third consecutive designation as a Magnet hospital from the American Nurses Credentialing Center (ANCC), the ultimate credential for high quality nursing and patient care. HSS has been a Magnet hospital since 2002, a rare achievement. This four-year redesignation recognizes nurses for outstanding patient care, professional education, self-governance, and innovative practices, among other things.

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Working Together for Excellence

As one of the only independent academic medical centers in the world exclusively focused on providing orthopedic and rheumatologic care to adults and children, every member of our team is dedicated to advancing musculoskeletal medicine through patient care, teaching, and research. Ours is truly a multidisciplinary approach – physicians, nurses, rehabilitation therapists, imaging professionals, and scientists all work together on a daily basis to improve care for our patients. This shared focus allows us to achieve new heights of excellence in patient care.

We know that our patients choose to come to us from around the world because they expect the most compassionate care and best results. They expect us to give them the ability to live life to the fullest – actively and with minimal pain.

One of the ways we help our patients achieve these outcomes is through an institutional commitment to safety. Our surgical team has systems in place – including four surgical safety checklists specifically designed for orthopedics – to ensure the safest results possible. These systems help us to achieve one of the lowest infection rates in the country. Because our culture is one of continuous improvement, our doctors and scientists consistently collaborate to discover new ways to improve safety and reduce complications through research, including the studies highlighted in this issue of *Discovery to Recovery*.

The success of our collaborative care model was recently recognized in November 2011, when HSS received its third consecutive designation as a Magnet hospital by the American Nurses Credentialing Center, the highest honor for hospital nursing departments. While this award honors our nurses for their outstanding work, it is a testament to the multidisciplinary team that provides our patients with compassionate care and

extraordinary medical results. In addition to their clinical work, HSS nurses participate in many research efforts focused on quality and safety, including falls and infection prevention.

In this issue of *Discovery to Recovery*, you will read about some of the many collaborative studies that are currently underway at HSS to further reduce surgical complication rates. Because our surgeons perform more orthopedic surgeries than any other hospital in the world – nearly 26,000 per year, including more than 8,000 joint replacements – we are able to gather and analyze data quickly so that patients benefit from our expertise.

We feature the Rheumatology Centers of Excellence, an example of how research, education, and patient care support each other at HSS, where research ideas are often inspired by clinical experiences, and where research findings are translated effectively into improved treatments and best practices for our patients. You will read about an imaging technique that helped scientists identify a clear link between ACL injury and early arthritis; a laboratory finding that may lead to improved diagnosis and treatment of osteolysis, a serious complication that can lead to failure of joint replacements; and the establishment of the new Center for Brachial Plexus and Traumatic Nerve Injuries, where cutting edge research and patient care will help people recover from debilitating injuries. In every example, clinicians and scientists work together to help patients get well.

At HSS, we are never satisfied with being the best at what we do; instead, we continually raise the bar for excellence in our specialty areas through innovation and discovery.

Louis A. Shapiro
President and CEO

Thomas P. Sculco, MD
Surgeon-in-Chief

Steven R. Goldring, MD
Chief Scientific Officer

News & Notes

HSS Campus Update: Recent Additions

HSS continually strives to provide unsurpassed care in our specialty areas. The ongoing modernization and expansion of the Hospital's campus, highlighted below, allows us to sustain excellence in musculoskeletal care while meeting the growing demand for our services.

In the main Hospital building:

- Two new patient care units with centrally-located nursing stations were recently opened.
- The HSS pharmacy was expanded and relocated to the new 9th floor.
- The CA Technologies Rehabilitation Center opened – the first stage of the Lerner Children's Pavilion, which will be completed in 2012 to accommodate the growing number of children coming to us for pediatric care.

On East 72nd Street:

- HSS expanded its Ambulatory Care Clinics and relocated them to East 72nd Street and York Avenue. The new clinics offer more convenient street access for patients with limited mobility, as well as additional exam rooms, on-site social services, clinical and support staff, and 1,250 square feet of space dedicated exclusively to diagnostic services.

On East 75th Street:

- HSS opened an easily-accessible outpatient center, housing the Physiatry and Pain Management Departments, on East 75th Street between 1st and York Avenues. Devoted to the non-operative management of musculoskeletal conditions, this 30,000-square-foot facility includes space

for clinical care, diagnostic services, procedure rooms, research, education, and physician offices. ●

Nursing stations in the new patient care unit on the 10th floor bring nurses closer to their patients, optimizing the delivery of care.



ARHP Awards Highest Honor to Laura Robbins, DSW

The Association of Rheumatology Health Professionals (ARHP), a division of the American College of Rheumatology (ACR), has awarded its highest honor, the ARHP Lifetime Achievement Award, to Laura Robbins, DSW, HSS senior vice president of Education and Academic Affairs and associate scientist. Presented during the November 2011 ACR/ARHP's Annual Scientific Meeting in Chicago, this award recognizes Dr. Robbins for a career that has demonstrated a sustained and lasting contribution to the field of rheumatology and rheumatology health professionals.



Laura Robbins, DSW

Dr. Robbins has a distinguished history with the ARHP, serving as its first president when the organization joined the ACR. Working on strategic planning and reorganization committees, as well as the ACR Board of Trustees, Dr. Robbins credits her time there with fostering her leadership skills. "ARHP is a unique group of professionals that takes the brightest, most talented clinicians, researchers, educators,

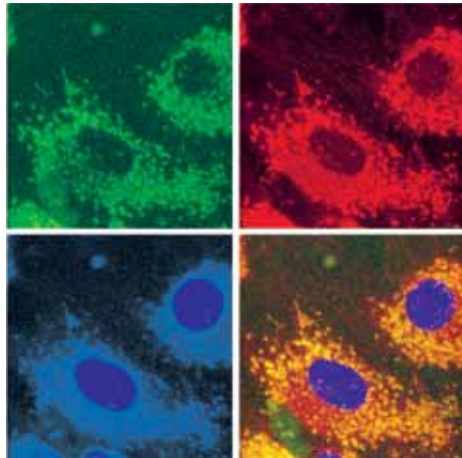
and administrators and fosters their professional development," says Dr. Robbins.

Much of Dr. Robbins' research focuses on the development of culturally sensitive education strategies to meet the needs of underserved, diverse communities. This includes research into cognitive rehabilitation intervention and quality of life for patients with lupus; clinical and economic outcomes of patients with total joint replacement; and educational interventions for patients living with rheumatoid arthritis or osteoarthritis. Serving on over 70 national arthritis-related committees spanning three decades and authoring or co-authoring over 40 peer reviewed publications, Dr. Robbins embodies the philosophy that education and information sharing are empowerment tools for both patients and healthcare providers.

HSS congratulates Dr. Robbins, as well as three other outstanding members of the HSS team, who were among the award winners at the ACR/ARHP meeting. Stephen Paget, MD, received ACR's 2011 Distinguished Clinician Scholar Award; Theresa Lu, MD, PhD, was recognized with the 2011 Henry Kunkel Young Investigator Award; and Lindsay Forbess, MD, received the 2011 Distinguished Fellow Award. ●

Discoveries in Osteolysis

Most patients successfully recover from joint replacement surgery with no complications. But occasionally, “wear debris” from the breakdown of materials in the hip or knee implant can accumulate in the surrounding tissues. This causes local inflammation that



Nanoparticles indicate inflammation in cells, the first sign that osteolysis will develop.

destroys the bone and loosens the prosthesis, a condition called osteolysis. “Osteolysis is the most common, long-term complication of joint replacement surgery,” says Ed Purdue, PhD, director of the HSS Osteolysis Laboratory.

HSS scientists are working to better understand osteolysis with the goals of prevention, early detection, and cure. Doctors have never had a tool to identify early roots of the problem. Now, HSS scientists and their collaborators

have found in the laboratory that a small designer molecule called a “nanoparticle” can be used to visualize inflammation around implants, the first sign of osteolysis. The molecule can also be used to deliver drugs to treat the inflammation and prevent osteolysis.

Several years ago, Dong Wang, PhD, worked to modify a nanoparticle system previously used to deliver chemotherapy agents to cancer cells so that it targets sites of inflammation. HSS investigators, including Dr. Purdue and Chief Scientific Officer Steven Goldring, MD, worked with Dr. Wang and colleagues at the University of Nebraska Medical Center to learn how to use this tool to hone in on the inflammation involved in prosthesis loosening.

First, they used orthopedic wear debris particles to generate an inflammatory reaction comparable to osteolysis. They then inserted the nanoparticle tagged with a fluorescent marker and saw it gravitate to the inflammatory cells. They also had the molecule deliver medication directly to the site of inflammation. While physicians will ultimately use a different medication to treat osteolysis, Dr. Purdue says that the study, published in *Molecular Pharmaceutics*, shows that this treatment is possible. ●

Caring for Our Patients

Brachial Plexus Surgery Gives Hope

An injury to the brachial plexus, the web of large nerves that exit from the spinal cord in the neck and direct the movement and sensation of the arm and hand, can cause life-long immobility without proper and timely diagnosis and treatment.

HSS surgeons have been refining treatments and diagnostic techniques for this condition, including nerve repair, transfer, and advanced microsurgical reconstruction, for more than a decade. As their clinical and research successes have become nationally known, more patients from across the country seek their help following injuries ranging from motor vehicle and sporting accidents to falls and gunshot wounds.

HSS specialists have now joined together to form the Center for Brachial Plexus and Traumatic Nerve Injury, providing

a comprehensive and coordinated treatment experience for those suffering with these devastating injuries. The Center team will offer specialized care, develop new and improved approaches to treatment, and conduct pioneering research.

“Early diagnosis and care, ideally within three to five months after injury, will greatly improve a patient’s chance for recovery,” says Scott Wolfe, MD, chief emeritus, Hand and Upper Extremity Service and director of the new Center.

Evaluating Treatment Options

During an initial evaluation, physicians use electrodiagnostic testing to study nerve and muscle function and glean information about the patient’s specific injury, learning if the damage is complete or partial, and whether or not the injury may be reversible through surgery and rehabilitation. Often, high resolution imaging studies are used to pinpoint the location of the injury, and the presence or absence of injuries of the nerves connected to the spinal cord, called avulsion injuries. Following surgery, electrodiagnostic testing is used to

MRI Reveals Long-Term Impact of ACL Tears

A recent HSS study used MRI to show that reconstructing the anterior cruciate ligament (ACL) after an ACL tear protects patients from developing osteoarthritis. In addition, people with an ACL tear sustain damage to the surrounding

cartilage that worsens over time. Doctors had previously thought that the “bone bruise” commonly seen in patients with ACL tears did not affect future health.

The *American Journal of Sports Medicine* study involved 40 patients with a total of 42 ACL tears. Fourteen knees were treated conservatively and 28 were reconstructed. Patients were followed for up to 11 years with standard MRI and a newer method of MR imaging called quantitative T2 mapping. At the time of baseline imaging and all follow-up visits, patients completed surveys to measure knee function.

All patients sustained cartilage

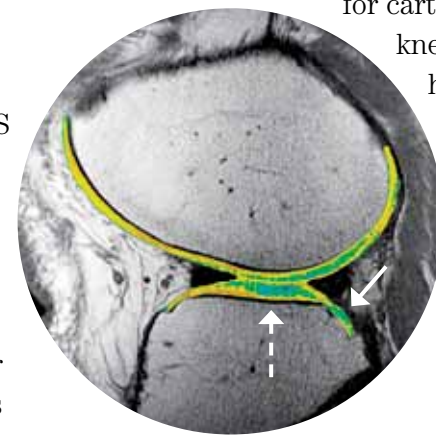
damage that increased over time. By years 7 to 11, the risk for cartilage loss to the lower portion of the thighbone was 50 times greater than that seen at baseline; the risk

for cartilage loss in the kneecap was 30 times higher than at baseline.

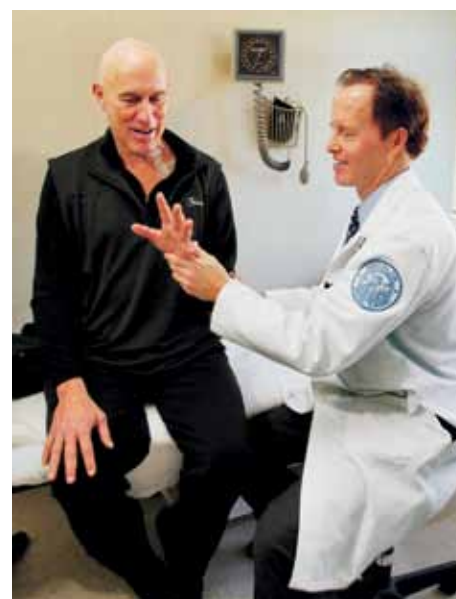
By years 7 to 11, patients without ACL reconstruction were six times more likely to have cartilage degeneration in the shinbone and five times more likely to have degeneration in the kneecap. Patients with

reconstruction had a slower rate of progression of osteoarthritis.

“This study indicates that the dramatic cartilage injury sustained at the time of the ACL tear affects long-term cartilage health,” says lead author Hollis G. Potter, MD, chief of the Division of Magnetic Resonance Imaging and director of Research in the Department of Radiology and Imaging at HSS. Dr. Potter, Chase and Stephanie Coleman Chair in MRI Research, says: “There is an increased rate of progressive cartilage damage in other areas of the leg that were unaffected by the initial impaction injury. ACL reconstruction can slow down this damage.” ●



Lateral view of the knee using T2 mapping demonstrates abnormal cartilage in the central area of the tibia (shin bone) (solid arrow), as well as in the area not involved in the initial “bone bruise” (dashed arrow).



Dr. Scott Wolfe examines Bermuda attorney Wendell Hollis several months following brachial plexus surgery.

monitor nerve and muscle recovery.

“This testing lets us accurately pinpoint the injury, quantify the degree of nerve damage, and helps to provide a clear diagnosis, which will help guide treatment,” says Joseph Feinberg, MD, physiatrist-in-chief and medical co-director of the Center. Not every patient with brachial plexus injury requires surgery.

Building a Research Base

Minimal data now exist on the long-term outcomes for brachial

plexus surgery. “With a greater understanding of these injuries, we can help improve treatment and recovery for patients,” says Steve K. Lee, MD, who recently joined HSS to become director of research for the Center.

Specialists at the Center use the clinical and research capabilities at HSS to continually refine and improve diagnostic and reconstructive options for patients. Dr. Lee and Dr. Wolfe recently presented two studies at the XVII International Symposium on Brachial Plexus Surgery, finding that clinicians do not have a standardized way to report outcomes of brachial plexus surgery, making it difficult to compare the benefits of different surgical treatments.

“From this work, we have determined that there is a need for a standardized outcomes measurement system or tool,” says Dr. Lee.

The Center is establishing a registry to enable surgeons to evaluate patient outcomes and improve management of these complex injuries. ●

Find more at www.hss.edu/BrachialPlexusCenter.

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HAPPENINGS AROUND THE HOSPITAL

HSS Spine & Sport Physical Therapy Center Opens in Florida >

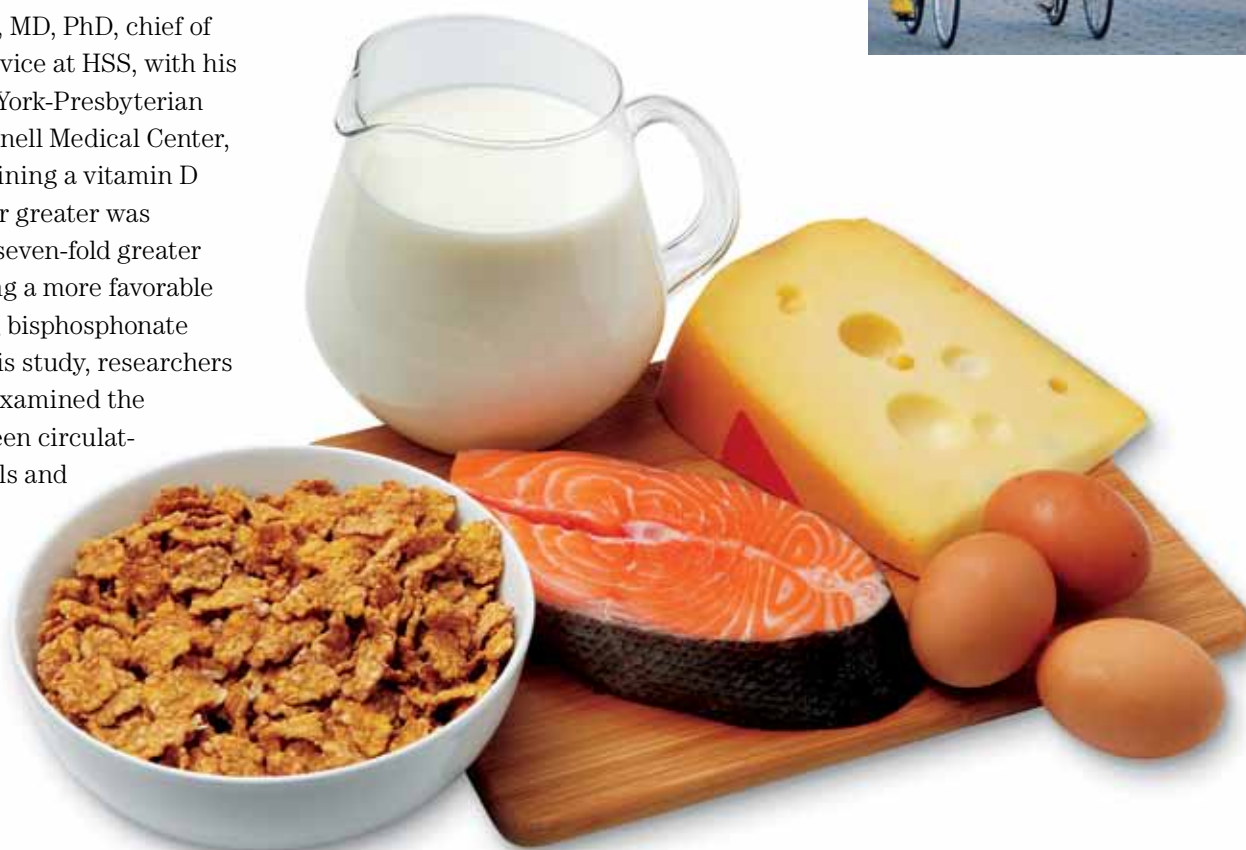
In fall 2011, HSS extended its world-class rehabilitative care to Jupiter, Florida with the opening of HSS Spine & Sport Physical Therapy Center. This first HSS expansion beyond the New York region is a direct response to demand by patients and physicians. Specializing in non-operative and postsurgical care, HSS Spine & Sport brings together the best professionals in the fields of spine, orthopedics, sports rehabilitation, massage therapy, and performance training. Florida residents, and those who spend the winter months there, now have access to HSS's expertise in outpatient rehabilitation. "Our multidisciplinary team of rehabilitation therapists provides Florida patients with the latest and most advanced approaches to return to and maintain an active life," says Michael Reed, director of HSS Spine & Sport, who is pictured here with a patient.

To learn more visit www.hss.edu/spineandsport.



Vitamin D and Bone Loss v

Physician-scientists at HSS have made an important discovery for the more than 20 million people taking bisphosphonate drugs to prevent bone loss. Richard Bockman, MD, PhD, chief of the Endocrine Service at HSS, with his colleagues at NewYork-Presbyterian Hospital/Weill Cornell Medical Center, found that maintaining a vitamin D level of 33 ng/ml or greater was associated with a seven-fold greater likelihood of having a more favorable outcome following bisphosphonate therapy. Before this study, researchers had not formally examined the relationship between circulating vitamin D levels and the popular bone loss medications. "We found that this minimal level of vitamin D had a powerful effect," explains Dr. Bockman.



HSS Bike Team Rides Strong ^

HSS physicians teach their patients that regular exercise is one of the best ways to stay healthy and enjoy life. Many early mornings, a team of HSS physicians and staff cycle together through Central Park, turning their words into action. "This ride is a great way for us to live the lessons we teach. Cycling together strengthens both our bodies and our community," says HSS anesthesiologist Leonardo Paroli, MD, PhD, who has biked with the group for ten years. For the past six summers, members of the group have cycled together through the mountains of France and Italy.

WELLNESS



Keeping Dancers on Their Toes >

Modern dancers and dancers in theater are significantly more likely than ballet dancers to return to work after hip arthroscopy surgery, finds a new study. “These data are helpful to patients trying to reach a decision regarding surgery. Hip injury is common in professional dancers,” says Douglas Padgett, MD, chief of Adult Reconstruction and Joint Replacement and co-director of the Center for Hip Preservation at HSS, who led the study. Sterling Masters (in photo) rejoined *A Chorus Line* just twelve weeks after Dr. Padgett conducted her hip arthroscopy surgery. She now dances in the hit musical *Wicked*. “Dr. Padgett not only saved my future career in performing, he rejuvenated it,” Ms. Masters says.



Let's Move on Course >

HSS is the official hospital of The PGA of America. In its new role, the Hospital is also the exclusive supporting sponsor of the *Let's Move on Course!* program, designed to encourage golfers and spectators to stay active through walking. As part of the program, over 25,000 HSS-branded pedometers were distributed to spectators and professional golfers at this year's 93rd PGA championship in John's Creek, Georgia. Fitness experts advocate a daily regimen of 10,000 steps – equivalent to five miles or walking 18 holes of golf – to improve overall fitness and help control weight. HSS also offered participants information about proper golf swings, stretching, and exercises to ensure safe play. HSS and The PGA of America will showcase the *Let's Move On Course!* pedometer program at three marquee events, including the Senior PGA Championship, PGA Championship, and 2012 Ryder Cup.



Health Tips for Athletes

In 2011, HSS formalized a community partnership with Asphalt Green (AG), a non-profit sports and fitness organization. Its 5.5-acre sports complex on Manhattan's Upper East Side is the home of robust youth and adult sports and fitness programs, and a member-based pool and fitness center. Known particularly for its Olympic pool for serious swimmers and its triathlon training and club for adults, AG also holds indoor and outdoor camps for hundreds of children all summer long. Scott Rodeo, MD, co-chief of the HSS Sports Medicine and Shoulder Service (at left), is leading the effort in conjunction with HSS primary care sports medicine doctors to provide health information on safe exercise, nutrition, and injury prevention to the AG community via newsletters to families; information in the gym facilities; and social and online media. The program complements the Hospital's robust professional sports sponsorship program and ensures that everyday athletes with close proximity to HSS can benefit from our expertise.



New Knee Surgery Research Chair Honors John N. Insall, MD

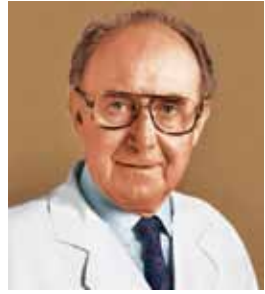
HSS knee research will result in many future advances, thanks to the newly created John N. Insall Chair in Knee Surgery. This Chair is funded through the extraordinary generosity of the John N. Insall Foundation for Orthopedics, which has pledged \$2,000,000 for research in knee surgery and biomechanics.

This new endowment recognizes the remarkable legacy of Dr. Insall, who pioneered modern-day knee replacement implants and techniques at HSS in the 1960s and 1970s. The Chair will provide ongoing support to the HSS Knee Service for its work in knee implant design and biomaterials development and the creation of new improved surgical techniques, so that future knee replacement patients will recover faster, function at higher levels, and enjoy longer-lasting implants.

Knee replacement surgery has long been at the core of HSS's mission, and the Hospital has been considered the research leader and innovator of this surgery for decades. HSS surgeons now perform nearly 4,000 knee replacements each year. Special Surgery's high patient volume, research infrastructure, and culture of collaboration allow surgeons and engineers to work together to continuously improve treatment options for patients requiring this surgery, still the only existing cure for end-stage knee arthritis.

Dr. Insall's Legacy

John N. Insall, MD, was a fellow at HSS in 1961, and was appointed chief of the HSS Knee Service in 1969, a founding member of The Knee Society in 1983, and president in 1987. Dr. Insall, who died in



John N. Insall, MD

December 2000, was not only one of the Hospital's most eminent investigators, but also a gifted teacher, training more than 200 orthopedic residents and 100 national and international fellows in his career.

Dr. Insall, considered the father of the modern-day knee replacement, is best known for his groundbreaking knee implant designs. In the early 1970s, Dr. Insall, along with Chitranjan Ranawat, MD, and Peter Walker, PhD, developed the first total knee replacement prosthesis created at HSS, a revolutionary design that replaced the existing hinge-type implants with one that was more anatomically correct. In 1978, Dr. Insall and Albert Burstein, PhD, then the director of the Hospital's Department of Biomechanics, once again revolutionized the world of implant science, creating a knee system that provided a stable joint with improved range of motion, the Insall Burstein Posterior Stabilized Knee, which became one of the most successful knee implants in the world.

Knee Service Chief Steven Haas, MD, Holds Insall Chair

Dr. Steven Haas, current chief of the Knee Service at HSS, who trained under Dr. Insall as a young surgeon, has been named to hold the John N. Insall Chair. Dr. Haas and his Knee Service colleagues will apply the resources provided by the Chair to research knee surgery and biomechanics. "Dr. Insall's contributions to the field are legendary. On a personal level, training under Dr. Insall greatly contributed to my development as a surgeon and investigator," says Dr. Haas.

He has developed groundbreaking surgical techniques and instrumentation for performing minimally invasive knee replacement and conducted extensive research in the field. Recent research topics have included improving knee replacement outcomes in younger, active patients; extending the longevity in knee replacement by minimizing polyethylene wear; and reducing post-operative complications.

"Dr. Haas is an exceptional surgeon and clinical investigator," says Thomas Sculco, MD, surgeon-in-chief at Hospital for



Dr. Steven Haas examines Jane Byron's right knee following a total knee replacement.

"It is an honor to assume a Chair in his name and to have the support to continue our research," says Dr. Haas.

Dr. Haas is an internationally renowned surgeon, leader in knee implant innovation, and lecturer.

Special Surgery. "Given the depth and breadth of expertise and the commitment of Dr. Haas and his colleagues, the Knee Service will benefit enormously from the resources provided by the John N. Insall Research Chair and continue to honor his legacy." ●

HSS Earns Magnet Award for Excellence continued from page 1

The challenging, multi-phase process to attain Magnet redesignation was a hospital-wide effort, culminating in a three day site visit by Magnet appraisers, in which many of the Hospital's more than 600 nurses, and their colleagues from other departments, took part in interviews and focus groups.

Exceptional Training

The ANCC recognized Special Surgery's commitment to elevating the educational preparation of HSS nurses. Ninety-seven percent of nurses at HSS have a Bachelor of Science in Nursing degree – surpassing the rate of other Magnet hospitals – and many have returned to school for advanced degrees and have achieved national certification. Our patients

benefit from expert nurses who are well educated, prepared for different practice settings within the organization, and specially trained in service excellence and high nursing standards through our nursing residency programs.



HSS nurses provide compassionate, evidence-based care.

Caring Relationships

Recognized for their relationships with patients, our nurses and staff throughout the Hospital create an optimal environment for care. "Our nurses value the relationships they

have with their patients and colleagues," says Senior Vice President of Patient Care Services and Chief Nursing Officer Stephanie Goldberg, MSN, RN.

Evidence-Based Nursing

Magnet surveyors applauded nursing self-governance at HSS. "Nursing leadership at HSS is decentralized and 'flat' in order to facilitate effective communication," says Goldberg. To support self-governance, nursing councils were created to foster open dialogue about patient care in specific areas of practice. Nurses are given the autonomy to make clinical decisions while caring for their patients to improve patient satisfaction. "Their idea is evaluated with other members of the interdisciplinary team on feasibility, and then we go ahead and try it. If it works it becomes part of what we do. If not,

nurses are empowered to come up with an even better idea," says Ann LoBasso, MBA, RN, assistant vice president, Nursing Operations.

At HSS, patient care decisions are supported by research – another distinguishing factor of Magnet hospitals. "The purpose of our nursing research and evidence-based practice approach is to continually raise the bar for delivery of patient care," says Patricia Quinlan, RN, DNSc, MPA, senior director of Nursing Excellence. Nurses at HSS work closely with physicians to conduct research in areas that impact the quality of patient care and outcomes, such as falls prevention and infection control. "We use data to help us drive and improve our processes," says Stephanie Goldberg.

This recognition is a testament to the Hospital's multidisciplinary team of caregivers and our commitment to exceptional patient care. ●

Centers of Excellence in Rheumatology: Research, Education, and Patient Care

When rheumatologist Mary K. Crow, MD, became HSS physician-in-chief in 2010, she created a “Centers of Excellence” framework designed to improve coordination of patient care, education, and research around specific autoimmune diseases. This “bench to bedside” model has long been the philosophy of HSS, where research ideas are spurred by clinical experiences, and where findings translate into improved treatments and best practices.

Because HSS rheumatologists are renowned as specialists in rare and common autoimmune diseases, patients come to them from around the world for diagnosis and treatment. Centers of Excellence currently exist for inflammatory arthritis; lupus and antiphospholipid syndrome; and scleroderma, vasculitis, and myositis. Centers of Excellence for osteoarthritis; metabolic bone disease and bone health; and pediatric rheumatology are in development.

Dr. Crow, the Joseph P. Routh Professor of Rheumatic Diseases in Medicine, aims to give patients unsurpassed care while efficiently supporting research in these debilitating diseases: “I want to mobilize the faculty’s energy on what’s important to the patient – and that’s efficient care focusing on their particular diagnosis. We want patients to feel they are part of the Hospital.”

A Team Approach to Research

The Centers of Excellence model encourages clinicians and scientists to work together to prioritize and identify the most pressing research questions evolving from their clinical work. “It’s helpful for laboratory scientists to bounce ideas off of people who work with patients, and it’s helpful for clinical researchers to discuss disease mechanisms with molecular biologists. We all work together to improve the way we care for patients,” says Dr. Crow.

The model also encourages patients to enroll in clinical registries and research studies. “When patients feel connected to the Center, they are enthusiastic about understanding their illnesses and participating in research endeavors,” says Sergio Schwartzman, MD, director of the Inflammatory Arthritis Center of Excellence, which focuses on rheumatoid arthritis (RA) and related diseases.

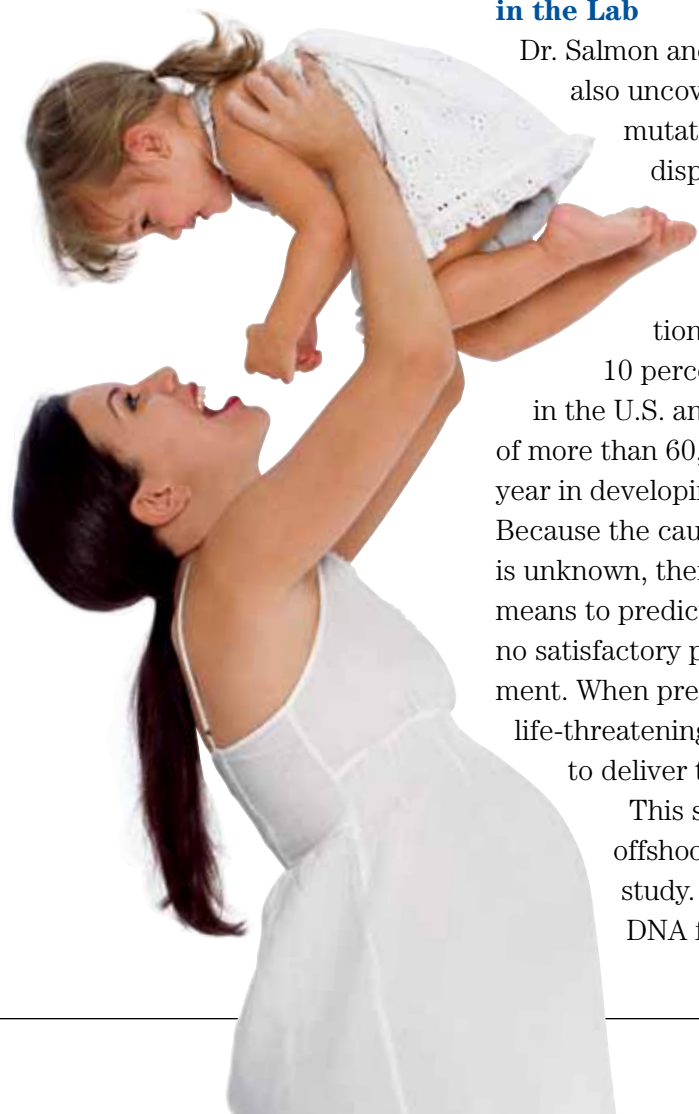
SLE and Antiphospholipid Syndrome Center of Excellence

Under the direction of Jane Salmon, MD, the Center for Systemic Lupus Erythematosus (also known as SLE or lupus) and the related Antiphospholipid Syndrome (APS) is a model for successful translational research. The Mary Kirkland Center for Lupus Research at HSS just celebrated its 10th anniversary, making important contributions to understanding the molecular and cellular basis of SLE and the development of new lupus therapies. Since its establishment in 2001 with support from Katherine and Arnold Snider of Rheuminations, Inc., the Kirkland Center has provided support to 19 HSS investigators who have collectively published 213 lupus-related articles and received more than \$50 million in federal, foundation, and industry funding.

This year, Kirkland Center scientists have published several noteworthy findings that will ultimately help patients with these serious diseases live active, healthier lives.

Lupus in Pregnancy: Clinical Findings

New findings have emerged from PROMISSE (Predictors of Pregnancy Outcome: Biomarkers in Antiphospholipid Study), which has received continuous funding from the NIH since 2003 to study pregnancy outcomes in women with lupus. Nearly 700 women are currently enrolled in this multi-center study, which requires monthly follow-ups from patients.



Mary K. Crow, MD

A new analysis of 333 pregnant women found that 4 out of 5 women who become pregnant when their lupus symptoms are quiescent and stable can have favorable pregnancy outcomes. “There was a misconception that women with lupus should not have children,” says Dr. Salmon, the Collette Kean Research Chair, who leads the study. “Now that our treatments are more effective and we have a better understanding of the disease, we can identify a window when pregnancy is safe and outcomes are good for mothers and their babies.”

Lupus in Pregnancy: Preeclampsia Breakthrough in the Lab

Dr. Salmon and colleagues have also uncovered genetic mutations that may predispose women to preeclampsia, a serious pregnancy complication that affects up to 10 percent of pregnancies in the U.S. and claims the lives of more than 60,000 women each year in developing countries. Because the cause of preeclampsia is unknown, there are no reliable means to predict its occurrence and no satisfactory prevention or treatment. When preeclampsia becomes life-threatening, the only option is to deliver the baby pre-term.

This study began as an offshoot of the PROMISSE study. Scientists analyzed DNA from 250 pregnant

women with lupus and/or APS as well as 59 additional women without autoimmune disease who had had preeclampsia during a previous pregnancy. Although additional research is needed, the study suggests new targets for treating preeclampsia and the possibility for developing a test to determine women’s risk for the disease.

Health Systems Research: Barriers to Care

The Kirkland Center is committed to providing high quality medical care to all patients, regardless of their income. A new Lupus Center study of 143 low-income patients with lupus finds that they are often unable to attend scheduled physician appointments due to obstacles including late or unreliable transportation or insufficient childcare.

This study identified barriers to access to care that can be improved to help this population obtain adequate healthcare. “Improving transportation services or providing temporary childcare is potentially an important approach to ensure that this patient population receives the attentive care they need and deserve,” says Pretima Persad, MPH, lead author of the study and the manager of the Mary Kirkland Center for Lupus Care.

Inflammatory Arthritis Center

The goal of the Inflammatory Arthritis Center is to become a leader in patient care, education, and research of the inflammatory types of arthritis, including RA,

Continued on page 8

Recognition from Around the World

Kudos

Celeste Abjornson, PhD, received a new one-year research award from Orthobond Inc. to study “The Effect of Metallic Surface Treatments on the Bony Fixation in a Rabbit Femoral Model.”

Carl Blobel, MD, PhD, Virginia F. and William R. Salomon Chair in Musculoskeletal Research, received a four-year renewal of a research award from the NIH/National Institute of General Medical Sciences (NIGMS) for studies of “ADAMs: Key Regulators of EGFR Signaling”; gave an Invited Lecture at Catholic University in Santiago de Chile; and gave the keynote lecture at the Gordon Conference.

Richard Bockman, MD, PhD, was named Chair of the Calcium Subcommittee of the Professional Practice Committee of the American Society for Bone and Mineral Research (ASBMR); and was appointed to the Steering and Planning Committee of the Clinical Endocrinology Update meeting of the Endocrine Society.

Rhima Coleman, PhD, received a new Burroughs Wellcome Fund Collaborative Research Travel Grant for studies of “FACE Analysis of Glucosamine Glycan Structure during Cartilage Calcification.”

Doruk Erkan, MD, spoke at the 12th National Turkish Rheumatology Meeting in Antalya, Turkey on “Management of Antiphospholipid Syndrome.”

Peter Fabricant, MD, received a new one-year OREF Resident Educational Grant to study “The Impact of Scoliosis Surgery on the Adolescent Athlete.”

Lindsay Forbess, MD, received a 2011 ACR Distinguished Fellow Award.

Federico Girardi, MD, received a new one-year research grant from the National Spine Research Foundation.

Mary Goldring, PhD, Ira W. DeCamp Fellow in Musculoskeletal Genetics, was a guest speaker at the Joint Meeting of the Bone Research Society

and British Orthopedic Research Society in Cambridge, UK.

Steven Goldring, MD, Richard L. Menschel Research Chair, was an invited speaker at the 2nd Asia-Pacific Osteoporosis and Bone Meeting held in Brisbane, Australia; the keynote speaker at the University of Pennsylvania Penn Center for Musculoskeletal Disorders Scientific Symposium; and was co-chair of the ACR Annual Meeting Basic Research Conference.

At the International Bone & Mineral Society Sun Valley Workshop on Musculoskeletal Biology, **Steven Goldring, MD**, served as a member of the Advisory and Organizing Committee and a Session Chair; **Mary Goldring, PhD**, chaired a session on Cartilage Degeneration and Repair in OA; **Mathias Bostrom, MD**, gave an invited lecture on “Augmentation of Fracture Healing: Past & Current Approaches to Stimulating the Healing Process”; **Lionel Ivashkiv, MD**, gave an invited lecture on “Notch Signaling and Toll-like Receptors in Arthritis”; and **Baohong Zhao, PhD**, received an American Society for Bone and Mineral Research (ASBMR) Harold M. Frost Young Investigator Award.

Qiu Guo, PhD, received a new one-year research award from the Feldstein Medical Foundation.

Alison Kitay, MD, received a new one-year research award from the American Foundation for Surgery of the Hand.

Michael J. Klein, MD, co-wrote and edited the Atlas of Nontumor Pathology: Non-Neoplastic Disease of Bones and Joints, published by American Registry of Pathology Press.

Joseph Lane, MD, was appointed Chair of the NIH Arthritis and Musculoskeletal and Skin Diseases Special Grants Review Committee Study Section.

Michael Lockshin, MD, was an invited speaker in Italy at the 7th International Conference on Sex Hormones, Pregnancy, and Rheumatic Diseases; at the 8th Meeting of the European Forum on Antiphospholipid

Antibodies; and at the Instituto Auxologico Italiano Ospedale.

Pediatric rheumatologist **Theresa Lu, MD, PhD**, received the 2011 Henry Kunkel Young Investigator Award from the ACR. She also was invited to be a Charter Member of the NIH Atherosclerosis and Inflammation of the Cardiovascular System Study Section.

Stephen Lyman, PhD, received a new one-year Innovative Outcomes Assessment Grant from the American Orthopaedic Society for Sports Medicine (AOSSM).

Carol Mancuso, MD, served as a reviewer on the NIH/National Heart, Lung, and Blood Institute Special Emphasis Panel Study Section reviewing Clinical Trial Pilot Studies; and the Study Section reviewing Research Dissemination and Implementation proposals.

Robert Marx, MD, was a visiting speaker at the John A. Feagin, Jr. US Military Academy Sports Medicine fellowship graduation held at West Point, NY; and Visiting Professor of Orthopedic Surgery at the University of Toronto.

Physician-in-Chief Emeritus **Stephen A. Paget, MD**, received the 2011 Distinguished Clinician Scholar Award from the ACR.

Alessandra Pernis, MD, received a new five-year research grant from the NIH/National Institute of Allergy and Infectious Diseases.

Hollis Potter, MD, Chase and Stephanie Coleman Chair in MRI Research, was the Keynote Speaker at the Royal Australian and New Zealand College of Radiologists 62nd Annual Scientific Meeting held in Melbourne, Australia; Visiting Professor at the Royal Prince Alfred Hospital in Sydney, Australia; and served on the VA Merit Review Panel for Cellular and Molecular Medicine.

Laura Robbins, DSW, Senior Vice President of Education and Academic Affairs and Associate Scientist, received the Lifetime Achievement Award from the Association of Rheumatology Health Professionals (ARHP), a division of the ACR.

Scott Rodeo, MD, Alice Fox, MSc, and Asheesh Bedi, MD, were awarded the first annual T. David Sisk Award for Research Excellence in Basic Science from the American Orthopaedic Society for Sports Medicine (AOSSM) for a manuscript submitted to Sports Health entitled “The Basic Science of Articular Cartilage Structure, Composition, and Function.”

Jane Salmon, MD, Collette Kean Research Chair, presented results of the nine-year National Institutes of Health (NIH) funded study on pregnancy outcomes in women with lupus at the 75th Annual Scientific Meeting of the ACR; and delivered the 35th Annual Michael Einbender Distinguished Lectureship at the University of Missouri School of Medicine.

Peter Torzilli, PhD, served as a reviewer on the NIH/NIAMS Study Section for R03 Small Research Grants; and served on the Imperial College of London Department of Bioengineering Advisory Board.

Andrew Weiland, MD, was elected to the Board of Trustees of the Journal of Bone and Joint Surgery.

Scott Wolfe, MD, was the Presidential Invited Guest Speaker at the 42nd Annual Meeting of the South African Society for Surgery of the Hand; and an Invited Professor at the LXVII Annual Meeting of the Chilean Society of Orthopaedics and Traumatology (SCHOT).

Timothy Wright, PhD, and **Peter Torzilli, PhD**, were invited by the Michigan Orthopaedic Society to teach a course open to all orthopedic residents in the state on biomechanics and biomaterials. ●

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Centers of Excellence continued from page 7

psoriatic arthritis, ankylosing spondylitis, and autoimmune ophthalmic diseases.

Within the Inflammatory Arthritis Center, clinical and laboratory research create a cycle of discovery. Scientists discover a new disease mechanism in the lab that ultimately results in the development of new therapeutic interventions, which are finally studied in clinical trials with patients.

Basic Research: Inflammatory Arthritis

Lionel Ivashkiv, MD, associate chief scientific officer at HSS and physician in the Inflammatory Arthritis Center, and colleagues recently published a study demonstrating how a powerful pro-inflammatory

protein, tumor necrosis factor (TNF), can also suppress inflammation by inducing a gene that has been previously linked to RA. The new understanding of how this mechanism works may lead to new therapeutic treatments for rheumatoid arthritis and other inflammatory diseases.

Clinical Research: Inflammatory Arthritis

The Center has recently benefited from the recruitment of rheumatologist Vivian Bykerk, MD, a clinical researcher leading a long-term observational multicenter study of how to best treat patients with new onset inflammatory arthritis and ensure their early access to care. Dr. Bykerk is growing this study at

HSS, which is now a sister site to Mount Sinai Hospital in Toronto, where Dr. Bykerk was previously director of its early arthritis program.

“As rheumatologists, we want to see patients with new onset rheumatoid arthritis as soon as possible,” says Dr. Bykerk. “The longer they wait, the higher the chance damage will occur.”

Collaborating for Excellence

The Centers of Excellence aim to advance patient care, research, and education around specific disease groups. The model encourages collaboration between scientists and clinicians, who motivate each other to ask new questions, investigate treatment options and causes of disease, and improve care for patients. ●

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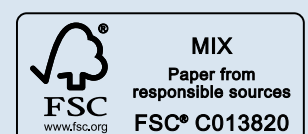
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Our Patients

LIVING WELL

Jacqueline Boyce

Being a law student can be stressful, which is why Jacqueline Boyce did not pay much attention to the aches and pains she was experiencing in her shoulder during her final semester in 2009. "I thought I was carrying around too many books, and thought my shoulder and wrist were just strained," says Ms. Boyce.

But over the next few months she started to feel much worse. She found that more joints hurt and stiffened. Soon she could not function normally in her daily life. "I couldn't even squeeze a shampoo bottle," she recalls.

Ms. Boyce was referred to Dr. Susan Goodman (see other side), who diagnosed her with rheumatoid arthritis. Dr. Goodman prescribed several oral medications, but after a few months Ms. Boyce was still having significant symptoms. Dr. Goodman then switched her to a monthly intravenous medication.

Today, Ms. Boyce says she feels close to normal and is enjoying an active lifestyle. "I'm doing daily Pilates and walking around New York City like I used to, thanks to the attentive care at HSS and the support of my fiancé and family."



Our Physicians MAKING AN INFORMED DIAGNOSIS

Susan Goodman, MD

Rheumatologist Susan Goodman, MD, treats patients with rheumatoid arthritis, osteoarthritis, and other inflammatory diseases. She is part of a collaborative research team of HSS rheumatologists, orthopedic surgeons, and social workers who collectively examine each individual patient's case to determine the best course of treatment.

In treating Jacqueline Boyce (see other side) for rheumatoid arthritis, Dr. Goodman recognized that a medication was not helping. Dr. Goodman's past research observations helped her

to make an informed decision to change the therapy. Now feeling much better, Jacqueline will likely avoid the need for more serious treatments, such as joint replacement surgery.

"Jacqueline's case is one that exemplifies the need for research explaining why patients react differently to drug therapies. Someday I hope that our studies will lead to tailored therapies that we will be able to prescribe to patients sooner in their treatment to prevent and limit the severity of their arthritis."