

HOSPITAL
FOR SPECIAL
SURGERY:
SPECIALISTS
IN MOBILITY

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REPORT

Horizon



A Lifetime
of Mobility

Horizon

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On the cover:

From the very young to the young at heart, and from grandchildren to grandparents, so many of life's pleasures occur while in motion. At HSS, clinicians and scientists confront the myriad musculoskeletal problems that threaten to impair mobility at any stage of life and embrace the personal and professional goals of patients whose paramount desire is to remain action-oriented.

From the moment of birth, each person embarks on a lifetime journey of growth and change. The ability to maintain mobility and independence is integral to the enjoyment of each phase of that journey – from infancy, through childhood, middle age, and the later years.

Every day – through medical advances, surgical innovations, and cutting-edge research – the skilled physicians and health care professionals of Hospital for Special Surgery pursue a singular mission: to restore quality of life to all who seek our care for musculoskeletal problems.



**From Infancy to
Older Adulthood:**
Achieving a
Lifetime
of Mobility ➤

Birth to 5

Taking Steps in the Right Direction

An amazing number of functional milestones occur in the early years. In the first year, a baby can sit up and crawl. As they become toddlers, they are able to walk alone and climb stairs. By age 3, they can ride a tricycle. With increased motor ability at 5, a child can skip and get dressed. But when musculoskeletal conditions interfere with these milestones, HSS physicians offer expert care for the child and kindness for the families.

Spina Bifida

Spina bifida is a congenital, neurological condition in which part of the spinal cord – normally protected within the vertebral column – develops outside of the body, causing loss of sensation and severe muscle weakness in the lower part of the body. This condition is often associated with an abnormal buildup of pressure of spinal fluid in the brain that can result in retardation unless surgically treated.

Clubfoot

Clubfoot is a congenital deformity that occurs in about one in every 1,000 births in the U.S. The affected foot tends to be smaller than normal, with the heel pointing downward and the forefoot turning inward. The heel cord (Achilles tendon) is also tight, causing the heel to be drawn up to the leg, making it impossible to put the foot flat on the ground.



Achieving a Lifetime of Mobility

Cerebral Palsy

Cerebral palsy is a functional disorder caused by damage to the immature brain during pregnancy, delivery, or shortly after birth. Characterized by movement disorders, such as spasticity, purposeless movements, and lack of balance, children with cerebral palsy may also experience seizures, abnormal speech, hearing and visual impairments, and mental retardation.

Osteogenesis Imperfecta

Osteogenesis Imperfecta (OI) – commonly known as the “brittle bone” disorder – is a genetic condition characterized by bones that break easily, often from little or no apparent cause. A child with OI can break a rib while coughing, or a leg by rolling over in his or her sleep.

Developmental Dysplasia of the Hip

Developmental dysplasia of the hip (DDH) is a congenital condition where the hip joint of a newborn baby is dislocated or prone to dislocation. In a baby with DDH, the hip socket is abnormally shallow, which prevents a stable fit of the femur, or thigh bone. Slack ligaments may also allow the femur to slip out of joint.

6 to 12

Helping Kids On the Go

By 6 to 8, children can use a scissors and tie their shoelaces. Seven- to nine-year-olds learn to use their small muscle skills to print words and large muscle skills to catch a fly ball. By nine through 12, they are into sports, very active, and self-aware. When musculoskeletal conditions affect this age group, HSS staff are not only treatment experts, they are also attuned to issues of self-esteem.

Juvenile Arthritis

Juvenile arthritis is the term used for all the types of arthritis that affect children. The most prevalent form is juvenile rheumatoid arthritis – an autoimmune disease in which the white blood cells lose the ability to tell the difference between healthy cells and bacteria and viruses. The immune system instead releases chemicals that can damage healthy tissues.

Limb Length Discrepancy

Differences between lengths of the arms or lower legs are called limb length discrepancy (LLD). The causes include a previous injury, bone infection, bone diseases, inflammation, and neurological conditions. Previously broken bones may cause LLD by healing in a shortened position. Other causes may include a break in a child's bone through a growth center causing slower growth of the limb.



Growing Pains

Growing pains refer to the pain in muscles or joints sometimes experienced by children and often attributed to rapid growth. Typically, they occur in children between ages three and eight years. Most often the episode occurs a few hours after sleep, but can happen in the middle of the night. Pain is almost always in a large joint, such as the knee. The pain usually disappears within 10 to 15 minutes and is gone in the morning. The pains may disappear for months or a year, and then start up again during another period of rapid growth.

13 to 18

Keeping Teens on Track

**Achieving a Lifetime
of Mobility**

During adolescence, a child experiences the greatest amount of growth. Teens will enter puberty and notice changes in their developing bodies as fat deposits and muscles change shape. Adolescents express a desire for privacy, concern about “fitting in,” and participate in more risk-taking behaviors. Sports play a huge role in many of their lives. At HSS, understanding these issues is key to preventing injury, treatment, and recovery.

Scoliosis

Scoliosis is a condition in which the spine curves to one side or the other in the thoracic and/or lumbar areas. Scoliosis may appear in more than one member of a family in the same or different generations. Most curves can be treated nonoperatively if they are detected before they become too severe.

Trauma

Orthopedic trauma is prevalent among teens, and can include simple and complex fractures, soft-tissue injuries, and sprains resulting from falls, automobile accidents, and sports participation. If not treated early and correctly, the injuries can result in severe arthritis at an early age.



Sports Injuries

Four million children under the age of 15 are hurt every year, either playing on the playground or participating in team sports. These injuries can include sprains, strains, and fractures. However, the more rapidly children grow, the more susceptible they are to injury at bone growth sites (knee, heel, shoulder, elbow, hip, and back). If growth site injuries are not diagnosed accurately and treated properly, they can lead to chronic pain, traumatic arthritis, deformity, and stunted bone growth.

19 to 35

Enhancing the Lives of the Young and Active

During this period, an individual becomes an independent adult. Young men and women leave home for college or a career; many will start a family. Building bone mass, physical fitness, and attention to diet are key to remaining healthy. Helping to maintain active lifestyles for this age group is a priority for HSS physicians, surgeons, and health care professionals.

Trauma

Trauma injuries continue as a potential threat for this age group, resulting from sports participation, automobile accident, or job-related mishaps. The resulting complex fractures or severe back conditions can cause chronic pain and post-traumatic arthritis.

Back Pain

Eight out of 10 people will experience back pain at some point in their lives. Risk factors include age, heavy lifting, obesity, poor posture, and repetitive movements. Pain can come from muscles, ligaments, nerves, discs, or bones. Symptoms include spasms and pain that radiates to the thighs, buttocks, or arms.



Sports Injuries

These can result from an accident on the field or on the slopes, poor training practices, improper equipment, lack of conditioning, or insufficient warm-up and stretching. Professional athletes and weekend warriors alike can suffer injuries of the knee, shoulder, and other joints. The goal of treatment is to return patients to pre-injury activities or level of play, to help them remain as active as possible, and to prevent future degenerative disease such as osteoarthritis.

36 to 65

Promoting Peak Condition in the Prime of Life

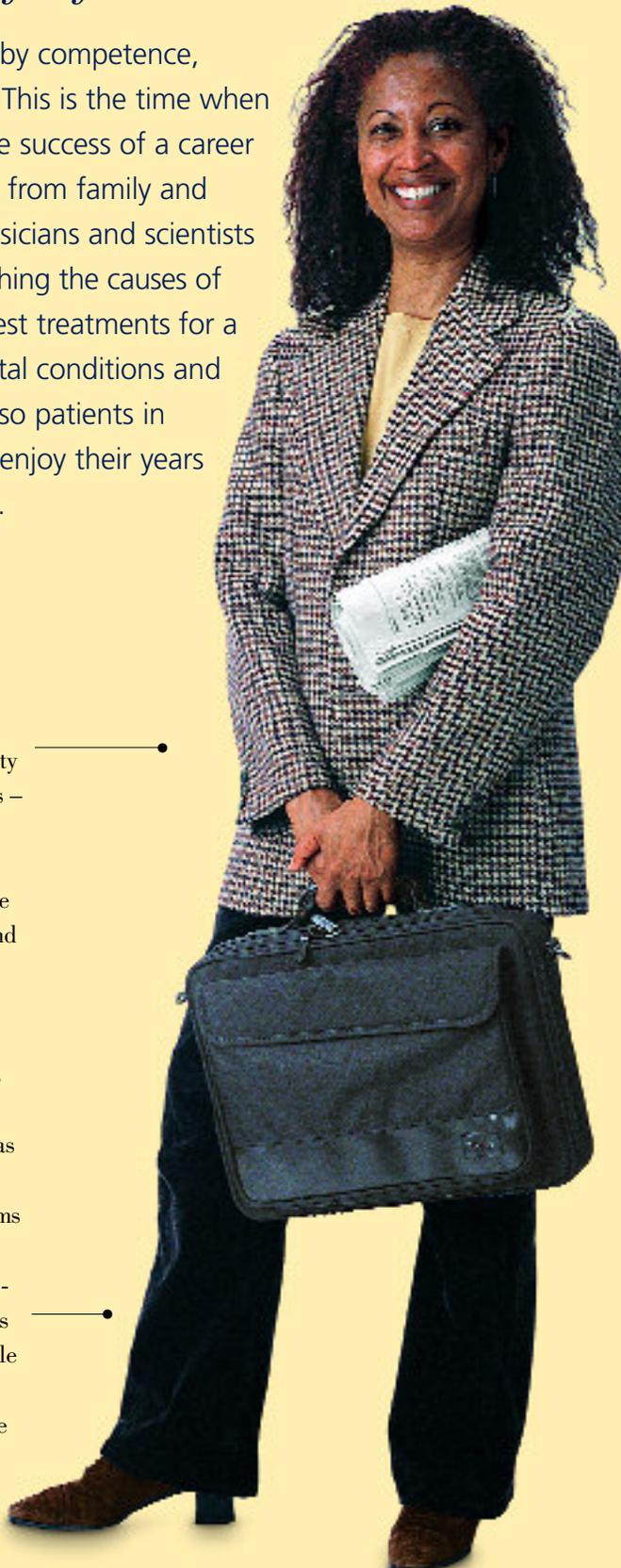
Middle age is marked by competence, maturity, and stability. This is the time when one wants to enjoy the success of a career and derive satisfaction from family and social life. At HSS, physicians and scientists are engaged in researching the causes of and advancing the latest treatments for a range of musculoskeletal conditions and autoimmune diseases so patients in their prime of life can enjoy their years now and in the future.

Osteoporosis

Osteoporosis is a disorder in which bones lose their density and become prone to fractures – most commonly of the hip, spine, and wrist. Steps to prevent the condition include increasing calcium intake and weight-bearing exercise.

Rheumatoid Arthritis

Rheumatoid arthritis (RA) is a systemic, inflammatory disease involving the joints as well as various tissues throughout the body. Symptoms include redness, warmth, swelling, and functional limitation in the joints, as well as fatigue and weight loss. While RA cannot be cured at present, joint damage can now be prevented with early use of disease-modifying drugs.



Achieving a Lifetime of Mobility

Lupus

An illness in which parts of the immune system go awry, lupus affects women nine times as often as men and African-Americans four times as often as whites. Symptoms can include arthritis in multiple small joints such as those of the hands and wrists, fatigue, low-grade fevers, weight loss, a “butterfly” rash on the face, hair loss, and kidney disease. Treatment can range from anti-inflammatory medications to experimental drugs depending on disease severity.

Early Osteoarthritis

Due to increased activity levels and sports participation at earlier ages, physicians today are seeing younger patients, in their 40s and 50s, with osteoarthritis. Post-traumatic arthritis can also develop following an earlier soft tissue injury or fracture.

Chronic Pain

Nearly one-third of the U.S. population experiences severe chronic pain at some point in life arising from injuries, back disorders, and degenerative diseases. New approaches in pain management can provide relief for many patients.

65 Plus

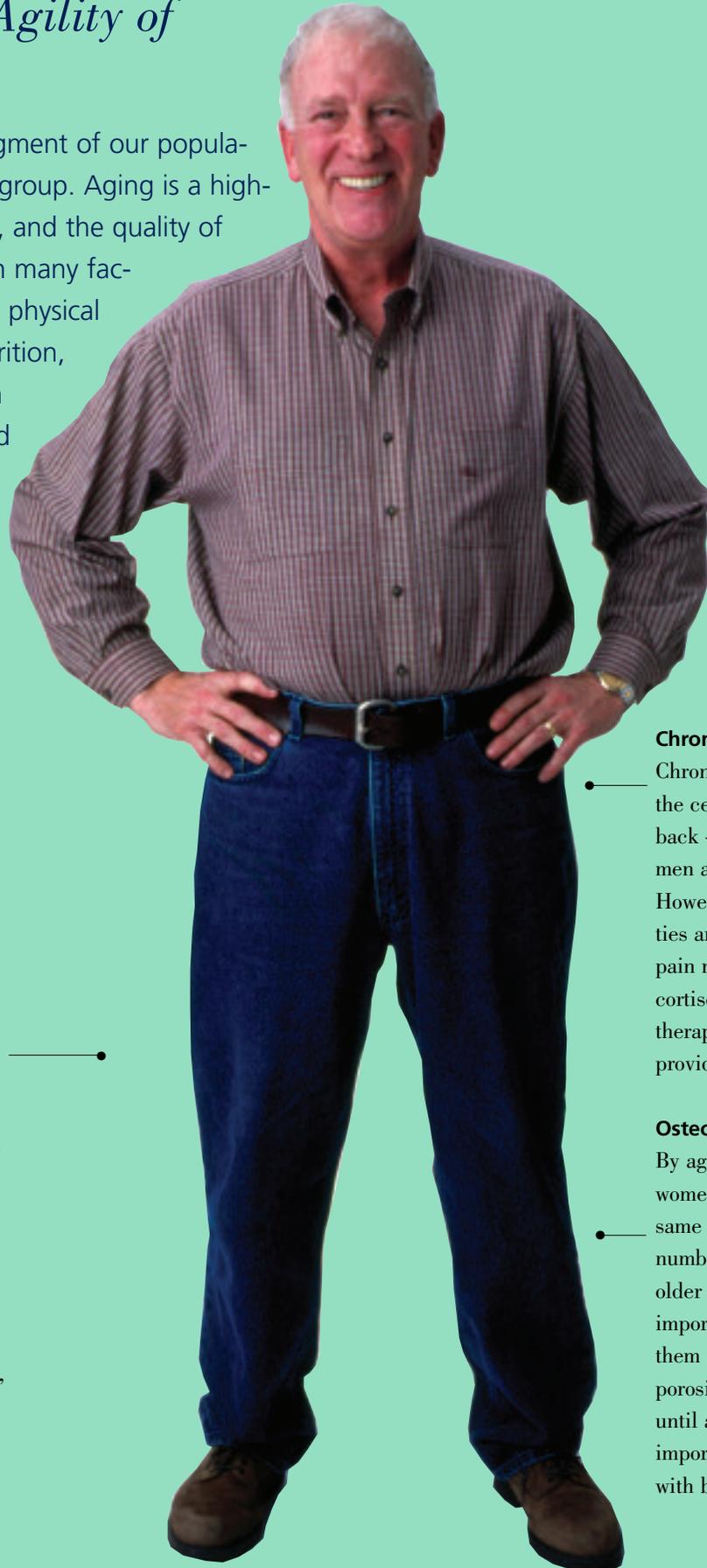
Maintaining Agility of Older Adults

The fastest growing segment of our population is the 65-plus age group. Aging is a highly individual experience, and the quality of one's life depends upon many factors, including heredity, physical and mental health, nutrition, and activity levels. With expertise in medical and surgical treatment, HSS staff offer solutions to the musculoskeletal problems of aging.

Osteoarthritis

Osteoarthritis of the knee is a very common condition in which the cartilage lining the ends of the bones that make up the knee joint begins to deteriorate. Eventually bone rubs against bone resulting in stiffness, pain, and disability. When medications are no longer effective in providing relief, total knee replacement

provides excellent results. Arthritis of the hip involves a loss of cartilage that eventually leads to bone rubbing on bone and destruction of the joint. Depending upon the extent of damage, hip arthritis may be managed either non-surgically or with surgical options that include osteotomy, in which the bone is cut to realign the joint, and total hip replacement.



Chronic Pain

Chronic pain – particularly of the cervical spine and lower back – continues to plague men and women over 65. However, a variety of modalities are available, including pain medications, epidural cortisone injections, physical therapy, and acupuncture, to provide relief.

Osteoporosis

By age 65 or 70, men and women lose bone mass at the same rate. As an increasing number of men reach an older age, osteoporosis is an important health issue for them as well. Because osteoporosis has no symptoms until a fracture occurs, it is important to be evaluated with bone density testing.

Generations on the Go:

Freedom of Movement at Every Age



When HSS patient Samantha Ackerman is on the go, so are her grandmother, Sonia Skolnik, and her mother, Faith Ackerman.

Birth to 5 – The Formative Years

It was Samantha Ackerman's tiny footprint, taken only minutes after birth, that alerted an observant nurse that something was amiss. At one day old, Samantha was diagnosed with clubfoot, a congenital deformity that occurs in about one in every thousand births in the United States. The affected foot tends to be smaller than normal, with the toes pointing downward and the forefoot turning inward. The heel cord is also tight, causing the heel to be drawn up to the leg, making it impossible to put the foot flat on the ground.

"Though we felt a bit overwhelmed at first," says her mother, Faith, "of all the things that can happen in life, we are grateful that this was treatable." Immediately, she and her husband, Marc, researched the condition, and learned that treatment should begin as soon as possible.

Evaluating Newborns for Musculoskeletal Concerns

According to Roger F. Widmann, MD, Chief of Pediatric Orthopedic Surgery, it is critical to evaluate newborns and infants for any kind of musculoskeletal deformity and begin them on a course of treatment as soon as possible. "The general and normal progression of mobility for a child includes sitting at six months, standing by nine or 10 months, and independently standing and taking steps at about a year," says Dr. Widmann, adding that there is a large range of what is considered normal in between. "If left untreated, a condition like clubfoot can prevent children from walking effectively."

The Ackermans' pediatrician steered them to David M. Scher, MD, a pediatric orthopedic surgeon who specializes in clubfeet and hip dysplasia. "Very often clubfeet can be detected during routine prenatal ultrasounds," says Dr. Scher. "Knowing ahead of time gives the parents the opportunity to research clubfoot and the different treatment options available, and then to plan a course of action soon after birth."

Clubfoot can range from very mild to very severe. "Two main factors determine its severity – the degree of deformity and stiffness," says Dr. Scher, who began treating Samantha at five days old using the Ponseti technique, named for the physician who developed it in the 1940s. This technique involves a series of manipulations during which the bones are gently rotated and the soft tissues are stretched, followed by casting the leg weekly to hold the foot in place.



Dr. David Scher, a pediatric orthopedic surgeon specializing in clubfoot and cerebral palsy, examines the progress of Desmond Teague, age three, who has been treated for clubfoot.

"The optimal time to treat a child is shortly after birth," says Dr. Scher. Following five or six casts, the child is fitted for special shoes with a bar between them to be worn for three months and then only during the nighttime. About 80 percent of cases also require a small operation called a tenotomy in which the surgeon cuts the Achilles tendon to lengthen it, allowing the ankle to bend up. This procedure is generally done in the physician's office under local anesthesia.

Developmental dysplasia of the hip (DDH), also known as dislocation of the hip, is another deformity that can be present at birth, or develop shortly after as the baby starts to grow. The condition occurs when the head of the child's femur, the long thigh bone, does not fit correctly into the hip socket.

"The femoral epiphysis – the small part of the hip – is made of cartilage and there is not enough calcium in it to show up on X-ray until the child is six months of age," says Daniel W. Green, MD, a pediatric orthopedic surgeon at HSS. "In addition to our physical exam, we use ultrasound to image the hips, and if we diagnose DDH, we treat them right away with a soft harness to hold the hips in the correct position. By initiating treatment in the first week or two of life, there is more than a 90 percent success rate in achieving normal mobility."



Samantha Ackerman was born with clubfoot, but because of early intervention by Dr. David Scher, she is now getting about like any other 18-month-old toddler.

“In certain cases, infants may be born with hips that are either dislocated or partially out of the socket, and that may have something to do with the position of the fetus,” says Ronald S. Adler, MD, PhD, Chief, Division of Ultrasound and Body CT. “During pregnancy, for instance, if the child is turned around in a breech position, they are more susceptible to having their hips partially dislocated.”

Through ultrasound, Dr. Adler uses high frequency sound waves to produce images of soft tissues and assess developmental abnormalities in the hips of newborns. “Because ultrasound does not employ ionizing radiation, the procedure is extremely safe,” explains Dr. Adler.

Adapting advanced imaging techniques to the pediatric population is familiar territory for HSS radiologists. Hollis Potter, MD, Chief of Magnetic Resonance Imaging (MRI), who has performed MRIs on babies just a few months old to patients over 100, notes, “When a child needs an MRI, it’s done with the greatest of care and with the greatest of expertise from our pediatric anesthesiologists, if sedation is indicated.

“We engage the child and parents early on and introduce the child to the environment of the MR in a very positive way,”

Dr. Potter continues. “Our technicians have a real sense of how to put the child at ease...lots of smiling, lots of telling them ‘we’re going to take some fun pictures, and you’re going to get to see them.’”

“Through early screening, pediatricians recognize many of the musculoskeletal problems,” adds Dr. Scher. But, just as importantly, he says, are parents’ observations of their child’s manners and behaviors. “Parents are usually the first to recognize something isn’t quite right, either by how the child is feeding or not feeding, or how they hold their head. The earlier they detect something is wrong, the sooner we can begin to treat the child.”

“Mobility clearly begins with pediatrics,” says HSS internist C. Ronald MacKenzie, MD. “These are not only the growing years, but the years in which motor skills are developed. Conditions that have a great impact on musculoskeletal functions could produce impairments that have immense implications for future quality of life. HSS physicians put strategies in place right from the start that will carry their patients through a lifetime.” ■

Taking Pediatric Orthopedics on the Road

Since its inception nearly 20 years ago, the Hospital's Pediatric Outreach Program (POP) has brought musculoskeletal screening and evaluation to more than 20,000 New York City children. "Wherever the children were, that's where we've gone," says Leon Root, MD, former Chief of Pediatric Orthopedics, who founded the program in 1987.

The idea for POP came to Dr. Root when he began seeing children in HSS clinics with musculoskeletal problems that, had they been detected earlier, would have been much easier to treat. "A child of six or seven with an orthopedic problem is easier to treat than a child of 14, 15, or 16 with the same problem because it is more advanced," says Dr. Root. "These children – who may be getting decent medical care – are not getting good orthopedic evaluation because most pediatricians are not trained to recognize these problems."

With the help of former State Senator Roy Goodman, Dr. Root received an initial grant from New York State for \$25,000 to launch the program. Accompanied by a team of two nurses and three or four HSS orthopedic residents, Dr. Root would visit a different school, preschool, or daycare center once or twice a month in Manhattan, the Bronx, and Brooklyn.

"During the orthopedic screening, we would also look for any medical conditions," says Dr. Root. "I've seen kids with goiters, weight problems, and eye and dermatological problems. In these cases, we refer them to appropriate health care facilities for treatment."

In addition to helping the children, POP is also a "wonderful teaching experience" for the residents, says Dr. Root. "They examine a lot of normal kids," he says, "as opposed to the hospital experience, where every child has some problem. In 100 kids, there might only be 8 to 10 with a medical issue."

Dr. Root teaches the residents how to interact with the children, and how to make the examination non-threatening. "I like them to smile and introduce themselves, sit down and look at them at eye level – all the little things they should do as they go on in life to become practicing physicians."

Since the early days, the POP staff has grown and now includes three bicultural coor-

dinators under the leadership of Laura Robbins, DSW, Vice President of Education and Academic Affairs. Pamela Sánchez, Senior Public Health Education Coordinator, who oversees the program, and Vilma Briones, POP coordinator, contact the school and family with any medical findings, and also help arrange for referral appointments. In cases where children with little or no insurance are referred to HSS, the Hospital's Manage Your Care VOICES program works with the POP coordinators to facilitate access to care.

Meeting New Needs

In 2004, POP introduced SNEAKER – Super Nutrition Education for All Kids to Eat Right, a community-based study under the direction of Dr. Robbins. "Over the course of 2004, we implemented SNEAKER in a variety of settings such as NYC public schools, community centers, and the Girl Scout Council of Greater New York, ultimately reaching 1,475 children, 6 to 8 years old, and adults," says Ms. Sánchez, who notes that POP's bicultural coordinators, Spanish and Chinese, are fundamental in reducing cultural barriers.

Last year, POP began helping to meet the growing health needs of the Chinatown commu-

nity by establishing a monthly Pediatric Orthopedic Clinic supervised by Dr. Root at the Charles B. Wang Community Health Center.

Since the Pediatric Outreach Program's first screening, more than 3,000 children have been referred for follow-up care and nearly 900 children have come to HSS for further evaluation and treatment.

Most recently, the Citigroup Foundation has provided generous funding for POP's expansion.



(Top) During a recent Pediatric Outreach Program screening at P.S. 130 in the Bronx, Dr. Walther Bohne puts a child at ease while examining her for musculoskeletal concerns of her foot and ankle. (Bottom) Sheryl Handler, MD, pediatric orthopedic fellow, evaluates the flexibility and strength of a young participant in the screening program.



A power kick by 12-year-old soccer player James Messina belies the complex surgery and arduous recovery he underwent four years ago following a trampoline accident in which he fractured his growth plate. Dr. Roger Widmann operated to straighten James' left leg and equalize its length to his right leg.

6 to 12 – *Keeping Up With Kids*

Like most active 10-year-old boys, Michael Henry enjoys nothing more than playing with his friends, running about, and shooting hoops. But life wasn't always so carefree for Michael, who was diagnosed at 18 months with cerebral palsy (CP). "As Michael grew, he was constantly falling and tripping," says his mother Darlene. "Diane Schmidt, a physical therapist at his school, knew his quality of life could be better if certain things could be fixed, and, fortunately, she suggested we take him to Dr. Leon Root, 'the best doctor in New York,' she said, for treating children with CP."

Cerebral palsy, a term used to describe a group of chronic conditions affecting body movements and muscle coordination, can develop during pregnancy, at the time of delivery, or result from some type of injury or malfunction in a child's life up to the age of two. According to Dr. Root, former Chief of Pediatric Orthopedic Surgery at HSS, "Anything that injures the immature brain can lead to some type of motor disturbance."

Enhancing Treatment with Early Planning

Dr. Root evaluates how a child with CP will develop in order to plan an appropriate treatment program. "If we know a child will be ambulatory, we do all that we can to help him or her keep their legs straight," he says. "If a child may never walk, our goal is to help him or her function well in a wheelchair, so we would work on stabilizing their hips in order to sit comfortably."

Michael was six when he first met Dr. Root, who determined that a bilateral osteotomy, in which Michael's upper leg bones would be surgically broken and rotated into a correct direction, would help him to better walk and sit properly. Dr. Root also performed surgery on his ankle.

"We take for granted bending our knees and touching the ground," says his mother. "Michael could not do that before, but now he walks independently. He can turn around and jump and even stand on one foot!"

Improving Lives with Limb Lengthening

In addition to the surgical advances and treatments that have helped Michael Henry enjoy an active and normal childhood, other surgical techniques in limb lengthening and reconstruction are dramatically changing the lives of children born with congenitally absent bone, known as limb-deficiency syndrome, or who have badly damaged limbs due to trauma.

"Previously, the only option for these kids was some form of amputation and prosthetic fitting," says Dr. Widmann. "Today, we have a limb-salvage procedure called bone transport that allows us to cut normal bone from above the site and transport it very slowly towards the ankle. In essence, new bone regenerates in the wake of the normal healthy bone." In this way, bone segments can be lengthened by 15 to 100 percent of their original length. Dr. Widmann uses a variety of techniques, including the use of circular external fixation frames that go around the limb to correct angular deformities, as well as limb-length discrepancies.



It's a slam dunk for 10-year-old Michael Henry, who you would never guess – except for a slight limp – could barely walk until he had surgery by Dr. Leon Root to correct severe gait problems caused by CP.

"The process requires a big commitment on the part of a patient's family," says Dr. Widmann, "but in many cases we can salvage the limb and the child will have excellent function."

In 2001, James Messina, then 8, fractured the growth plate below his kneecap in a trampoline accident. The growth plate regulates and helps determine the length and shape of the mature bone. James' mother, Laura, was not satisfied with how he was healing. "I could see his leg was bowing, and wasn't growing as quickly as his right leg," says Mrs. Messina. "It was bothering James, too, especially since he is an athlete and

plays soccer and lacrosse. Through my research, we saw a number of doctors, but we weren't satisfied until we found Dr. Widmann."

At their first meeting three years ago, James and his parents listened carefully to Dr. Widmann's initial assessment. "I was in awe of the way he approached us and explained everything," says Mrs. Messina. "On the way home, James said, 'I like him, mom, and I have confidence in him. I want Dr. Widmann to do the surgery.'"

James underwent surgery to both correct deformity and lengthen his leg, and today his tibia is perfectly straight and as long as his right leg.

Part and parcel of Dr. Widmann's success is the input he receives from the Hospital's MRI specialists. "We have a specific protocol to look at issues in skeletally immature patients when the growth plates haven't fused yet," says radiologist Carolyn Sofka, MD. "We can provide the orthopedic surgeon with information about what the growth plate looks like, which helps to determine a potential leg length discrepancy."

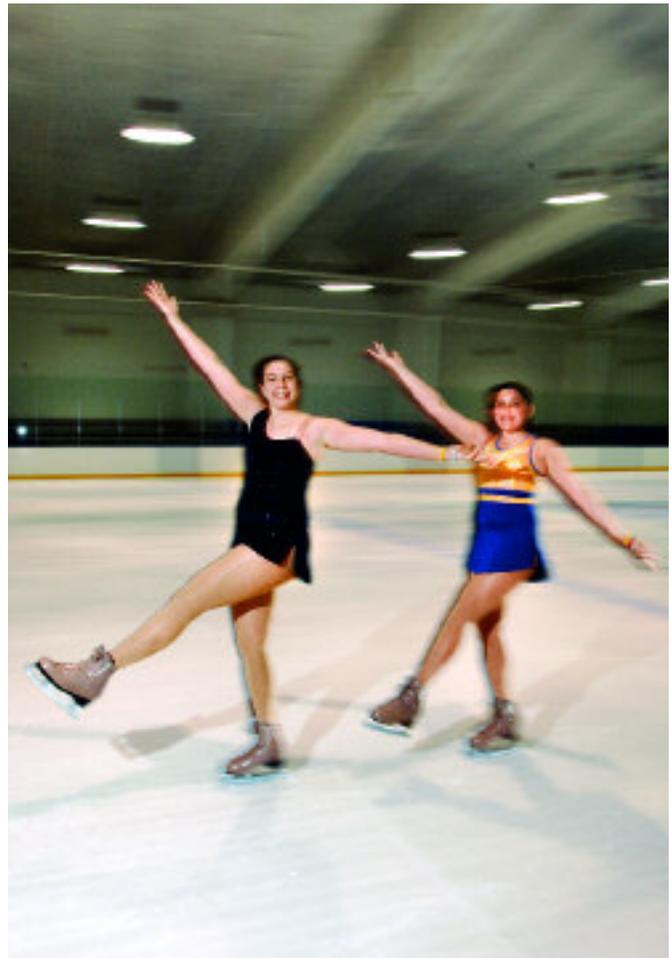
"It was a major decision to go through the operation," says Mrs. Messina, "but James, who is back playing soccer, said to me recently, 'Thank you for getting me the best doctor.'" ■

13 to 18 – A Time for Teens

When Christian Milin came to see Thomas J. A. Lehman, MD, Chief of Pediatric Rheumatology, he had already endured many years of debilitating pain from juvenile rheumatoid arthritis (JRA). While his friends played baseball and soccer, Christian went from doctor to doctor trying a variety of medications and getting little relief. "It got very bad in 1988," says Christian, who was nine at the time. "That's when I finally was referred to Dr. Lehman, and he set me on a course of more aggressive treatments."

"At HSS, we see many children who unfortunately did not get to us until their disease was well-established," says Dr. Lehman, who has specialized in JRA for more than 25 years. "Often with the new biologic therapies – along with physical therapy – we can get the disease under control, strengthen the children, and allow them to regain normal functions."

JRA causes joint inflammation and stiffness in children 16 years of age or less. It is an autoimmune disease in which the body mistakenly identifies some of its own cells and tissues as foreign



Sisters Leigh and Sara Pressman share a passion for ice skating, but also have in common a diagnosis of scoliosis.

and begins to attack healthy cells and tissues. The result is inflammation – marked by redness, heat, pain, and swelling.

According to Dr. Lehman, parents often dismiss their child's discomfort in the morning as just growing pains, when in fact it is JRA. "Children do have growing pains, and they are common," he says. "A child will wake up from a deep sleep complaining that his or her legs hurt. After gentle massage, the pain – which usually occurs at night – disappears within 15 minutes and is completely gone in the morning.

"Children with arthritis, however, often limp from joint pain when they first arise, and their pain continues for periods while they are awake," he notes. "Any child with pain during the day should be medically evaluated. A delay in initiating aggressive, appropriate therapy at the beginning can often result in a lifetime of disability."

Under Dr. Lehman's care, Christian began to improve over the next several years. But at age 17, he developed a fever and a ferocious return of the arthritis that destroyed much of the cartilage in his hips. "It couldn't get any worse, and so the doctors at HSS replaced both hips at the same time," says Christian.

“It was a tough time, but it was worth it,” he says, adding that today he is barely aware of his artificial hips. As a cameraman for NY1 cable news, he has chosen a career that is suited to his personality, but not perhaps to his disease. “Dr. Lehman is always telling me to remain active, but avoid anything too stressful,” he says. “As a cameraman, I am very active, which is good for me. And while the days are sometimes long and can be tough on my joints, I wouldn’t be happy with a desk job. I enjoy what I do and just try to remain healthy.”

Successful Treatment for Scoliosis

Scoliosis, a curvature of the spine, usually starts in the early teens or pre-teens and may gradually progress as rapid growth occurs. “In the most common form of scoliosis, known as idiopathic scoliosis in which there is no known cause, the spine is curved in one or more places with a lateral, or sideways, orientation,” says Stephen W. Burke, MD, former Chief of Pediatric Orthopedic Surgery at HSS. It affects young people from puberty to maturity, and is seen predominantly in girls.

In the early years, every attempt is made to control the curve with bracing – a vest with straps attached in strategic locations. “If bracing doesn’t help before age five, or if the curve exceeds a certain magnitude, we can insert rods in the child’s spine and lengthen them every six months to a year to allow the patient to grow with it,” says Oheneba Boachie-Adjei, MD, Chief of the Scoliosis Service.

“Progressive spine deformity that occurs in early life has dramatic consequences in terms of a patient’s lung capacity,” says Dr. Burke. “If the spine begins to deform the chest cage, it can severely compromise heart and lung function.”



During morning rounds, Dr. Roger Widmann, Chief of Pediatric Orthopedic Surgery, visits 14-year-old William Long and other children and teens on his watch.



For patients of any age, Dr. Ronald Adler, Chief of Ultrasound and Body CT (right), can apply sound waves to image soft tissue abnormalities in detail.

With a family history of scoliosis, Paula Pressman’s pediatrician looked for early signs of it in her daughters. When Leigh was diagnosed at age six with an irregular spinal curve, the Pressmans sought a second opinion with Dr. Burke.

“When I met him, I knew that this is the man I want to care for my children,” says Mrs. Pressman. Dr. Burke agreed with the diagnosis and placed Leigh in a customized brace that molded to her body. She wore it for 23 hours a day, and as she grew, she would be measured for a new brace. Throughout, Leigh was able to take part in normal activities, including ice skating. Today at 15, with her skeletal growth finished, Leigh no longer wears a brace, and her back is strong.

Four years ago at the age of 9, Sara, Leigh’s sister, was also diagnosed with scoliosis. “Sara, too, had to wear her brace for 23 hours a day. But recently, she has been able to be out of the brace eight hours a day. Dr. Burke will check her in two months to make sure there is no adverse effect,” says Mrs. Pressman. Before her diagnosis, Sara excelled in gymnastics, a sport she had to exchange for ice skating, horseback riding, and scuba diving.

While HSS orthopedic surgeons have made significant advances in the surgical and non-operative treatment of scoliosis, physicians are also pursuing genetic research to find the genetic locus of scoliosis. “If we can develop a genetic test that can dramatically improve the screening process,” says Dr. Burke, “it will enable us to pinpoint patients at high risk for a progressive condition and follow them very closely.”

“Our goal has been to avoid surgery for the girls,” adds Mrs. Pressman. “Dr. Burke does what works. He’s not overly aggressive – or conservative – in his treatment. He’s been just right for us.” ■

19 to 35 – *Accelerating the Pace*

When Barbara Arditte's daughter, Kim, began to complain of random joint pains in the eighth grade, Barbara hoped against hope that it would not be lupus – the same autoimmune disease that she herself had been diagnosed with at 16. As she had done for the past 20 years, Barbara turned for help to Michael Lockshin, MD, Director of the Barbara Volcker Center for Women and Rheumatic Disease at HSS.



At age 26, Christian Milin, cameraman for NY1 cable news, has been able to take on a career he enjoys thanks to treatment for juvenile rheumatoid arthritis he has received at HSS since he was 10.

In 2000, then a high school freshman, Kim came down with an upper respiratory infection and developed pneumonia. “She wasn’t getting better,” remembers Barbara, “and finally I called Dr. Lockshin, who told us to bring her to New York.”

The night before her appointment, Kim woke up in excruciating pain with a full-blown flare-up of lupus. “We bundled her into the back of the car and drove straight to HSS,” says Barbara. “It was like coming home for me, because I knew Dr. Lockshin was waiting for us.”

Kim was hospitalized for four days receiving high doses of the steroid prednisone intravenously. She responded well to treatment, and since then has been in full remission. Now a freshman in college, she takes a non-steroidal, anti-inflammatory medication daily and says she “feels perfectly normal.”

“Years ago, we were looking at the survival of patients with lupus,” says Dr. Lockshin. “Today that is a nonissue. What we are doing now is trying to make their lives as normal as possible through medication.”

Looking to the future, Dr. Lockshin is optimistic about the development of new drugs that have far fewer side effects than current ones. As part of the Lupus Clinical Trials Consortium, Dr. Lockshin and colleagues will soon be working with 27 other institutions around the country sharing protocols and testing new medications for specific forms of lupus.

As better treatments became available for treating lupus, doctors began seeing yet another possible manifestation of the disease – early heart attacks and strokes. Senior scientists Jane Salmon, MD, Collette Kean Research Chair, and Peggy Crow, MD, Benjamin M. Rosen Professor of Immunology and Inflammation Research, sought to find out why, and learned from five-year studies with lupus and rheumatoid arthritis patients that they have accelerated atherosclerosis. “These patients have blood vessels that look like they’re decades older,” says Dr. Lockshin. “The next step is to study the mechanisms that might be responsible as well as consider interventions that prevent early coronary disease.”

In his basic research laboratory, Lionel B. Ivashkiv, MD, David Koch Chair and Director of the Arthritis and Tissue Degeneration Program, and his team are advancing studies into the pathogenesis of rheumatic diseases such as lupus and rheumatoid arthritis, and most recently, identified a new chemical pathway that could be a target for future drug therapies. “The pathway involves the body’s responses to potent substances called cytokines, a group of proteins that have a marked influence on the progress, or reversal, of certain rheumatic diseases,” explains Dr. Ivashkiv.

“These are very exciting times in research and drug development,” says rheumatologist Joseph Markenson, MD. “We have entered an age where specific therapies can be designed by going to the bench researcher who determines which molecules play major roles in the disease process and then develop therapies to target those that are elevated. For example, with the discovery in the 1990s that a molecule called tumor necrosis factor had a major role in the joint destruction caused by RA, came medications that gave us a handle on suppressing the disease.”

HSS Doctors and Patients: Lasting Relationships

For the past 20 years, Barbara Arditte has been under the care of Michael Lockshin, MD, Director of the Barbara Volcker Center for Women and Rheumatic Disease. When he was 11, John McDonald vividly remembers his first appointment with Leon Root, MD, former Chief of Pediatric Orthopedic Surgery. That was 25 years ago. These types of long-term relationships between the doctors and patients of HSS are not uncommon. In fact, the bonds – forged over time and frequently through the ups and downs of disease and injury – are key to the therapeutic process at HSS.

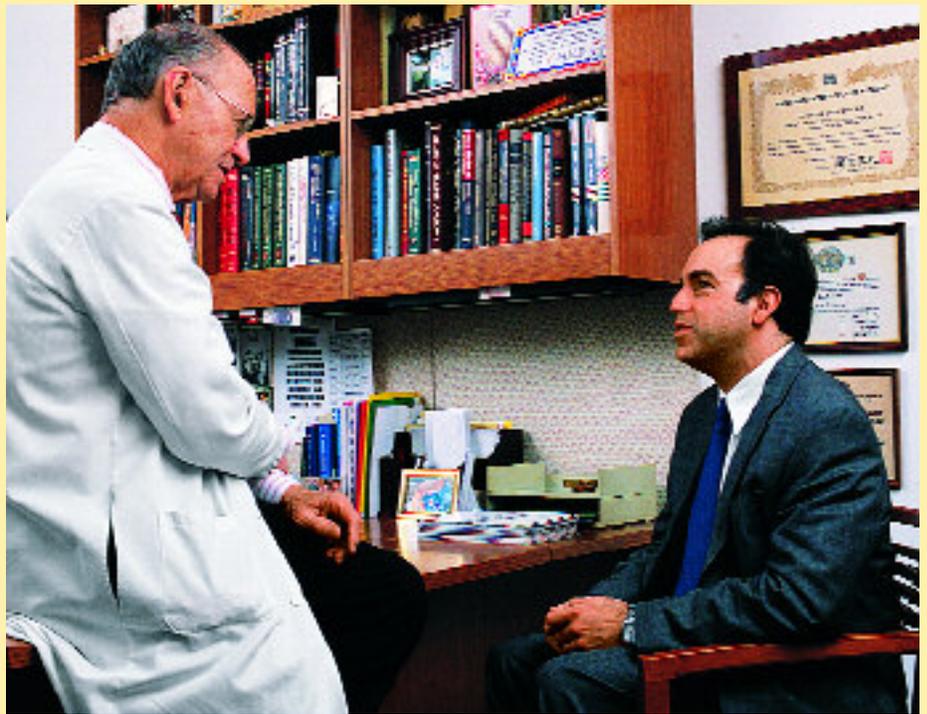
Lifetime Challenges of Lupus

Dr. Lockshin began treating Mrs. Arditte for lupus in her 20s. At the time, she was in remission and hoping to become pregnant. “He felt I was well enough to carry a pregnancy and saw me through it every step of the way,” recalls Barbara, now 48.

Dr. Lockshin followed her closely as she carried to full term, delivering her daughter Kim by Caesarian section. “Dr. Lockshin was even there for my delivery, looking on from the



“With Dr. Lockshin, you always have someone looking out for you,” says Barbara Arditte, a patient of his for some two decades.



John McDonald (right) has dubbed himself “president of the Dr. Root fan club.” The feeling is mutual, reflected in the deep bond forged between John and Dr. Root over a period of 25 years.

next room,” she says. The Ardittes eventually moved to Rhode Island, but Barbara continued to remain in Dr. Lockshin’s care in New York. Subsequently she delivered another daughter and a son.

Five years ago, when Kim began to have symptoms of lupus, Mrs. Arditte dialed a number she had memorized years before. To this day, they have mother/daughter appointments with Dr. Lockshin. “Not only is he a great doctor with a wonderful bedside manner,” says Mrs. Arditte, “he is truly one of the best in the field.”

Confronting Cerebral Palsy Over Time

Prior to meeting Dr. Root, Mr. McDonald was diagnosed with a mild form of cerebral palsy affecting both legs. He had seen nearly a dozen physicians with “varying degrees of success in terms of prognosis or developing a plan of action” when his parents read an article about Dr. Root and what he was doing surgically for children with cerebral palsy. “Once we met him, we were all taken by his demeanor,” says John. “We knew we had come to the right place.”

John’s form of cerebral palsy caused him to walk with a “scissor gait” – on his toes with his feet and knees pointed inward. Dr. Root

recommended surgery as the best course of treatment and performed the first in a series of procedures. “As Dr. Root explained it, that first surgery set the cornerstone for future treatment,” says John.

Throughout the 1980s, John underwent additional surgeries, including having his hip reset, as well as having his tendons released to allow for greater flexibility and mobility. “CP does not advance and progress like other disorders, but it will try to return back to the original degree of insult,” says John.

“Children sometimes think that once they have surgery, they will be cured,” notes Dr. Root. “The reality is there is no cure for cerebral palsy, but there is much we can do to help patients reach their potential. I have to be concerned about all aspects of their life – schooling, medical problems, emotional issues, social activities, and so on.”

John, now 36, has achieved a number of goals, including earning dual master’s degrees in psychology and social work, and a rewarding career as a social worker. “My life has taken me in many directions, and I’ve been blessed to have met so many people who have helped me along the way.”

Meanwhile, early identification of rheumatoid arthritis is critical so that medications can begin to halt their progression. “This is particularly important when it comes to treatment of RA,” says Stephen A. Paget, MD, HSS Physician-in-Chief. “With the availability of disease-modifying drugs the outlook for RA patients has dramatically improved. We have a window of opportunity where early aggressive treatment can prevent damage to joints from occurring so that patients will be able to live relatively normal lives.”

The recent creation of the Gosden Robinson Early Arthritis Center at HSS is expediting the diagnosis and treatment of patients whose symptoms indicate they may have rheumatoid arthritis. “The Center allows us to identify patients who are apt to develop severe disease and make sure they receive appropriate treatment as soon as possible,” says Dr. Paget.

Specializing in Sports Medicine

“The definition of young keeps changing as I’m getting older,” says Answorth A. Allen, MD, an orthopedic surgeon specializing in sports medicine. “I treat patients across all age ranges with athletic injuries, including the weekend warrior types who sustain injuries doing their regular workouts.”

Rupture of the anterior cruciate ligament (ACL) is the most common injury and has the greatest potential to cause both short-term and long-term disability. Orthopedic surgeon Robert G. Marx, MD, recently completed a study on ACL injuries and the effect of surgery on subsequent re-injuries.

“The ACL provides stability for the knee,” says Dr. Marx. “When a patient tears the ACL, there is greater risk for re-injuring the knee, particularly with sporting activities that involve cutting and pivoting. We now have solid evidence that the younger patient is better off having the ACL surgically repaired than risking re-injury, with possible cartilage and meniscus damage, leading to arthritis when they are older.”

According to Scott A. Rodeo, MD, orthopedic surgeon, more and more people in their early to mid 30s have mild to moderate degenerative changes in joints due to previous injuries. “In the past, these people would have had to modify their activities to put off the inevitable, which is arthroplasty,” he says. “Today we can offer them a range of treatments, including cartilage or meniscus transplants. These procedures allow a person to continue their level of athletic activity for another 10 or 15 years until replacement becomes necessary.” ■



This mother/daughter dynamic duo – Barbara and Kim Arditte – share a close bond not only with each other, but with Dr. Michael Lockshin, their long-time physician who oversees the management of their care for lupus.

36 to 65 – Prime Time

A practicing attorney with a passion for horses, Barbara Matarazzo is used to winning both trials and blue ribbons. In the summer of 2002, she was training for a competition when her horse's shadow covered a jump. "My horse thought about it for a second," she recalls, "and I jumped ahead of him and came off landing on my left foot as it was spiraling." The resulting compound fracture was too complex for treatment in the local emergency room, and Mrs. Matarazzo was transferred by ambulance to HSS to be met by David S. Levine, MD, a foot and ankle specialist with particular expertise in foot and ankle trauma.

"Modern care of injuries about the foot and ankle," says Dr. Levine, "involves implanting internal fixation devices to try to maintain the corrected position and the integrity of the joint. These devices also have the distinct advantage of allowing early motion, which is helpful for cartilage healing."

Mrs. Matarazzo had a distinct type of fracture about the distal tibia called a pilon fracture. "This type of ankle fracture," says Dr. Levine, "requires you to tiptoe around the soft tissues. Not treated appropriately, it can lead to functional problems long term. We were able to reconstruct Barbara's ankle using a minimally invasive technique to implant plates under her skin."



Dr. Gregory Liguori, Chief of Anesthesiology, helps patients such as Joan Lepelstat prepare for surgery and with the management of post-operative pain.

Addressing the Onset of Early Arthritis

A raquetball devotee with a history of knee problems and arthroscopic surgeries to remove damaged cartilage, Chandran Panicker found himself, at only age 53, a candidate for knee replacement surgery – not for just one knee, but for both. "The



With the longterm care of Dr. Leon Root, John McDonald has mastered several challenges in his lifetime – first, cerebral palsy, and now the martial arts of Judo and Jujitsu.

pain just stops you in your tracks," says Mr. Panicker. "And my left knee wouldn't bend past 90 degrees."

A patient of Geoffrey Westrich, MD, Mr. Panicker is one of many seen by HSS orthopedic surgeons for what is referred to as early osteoarthritis. "In younger patients, there are many reasons – including trauma, fracture, or injury – for the development of early arthritis following the same kind of pattern that we see in older people. Even though we try to fix the fracture or repair the injured area as best we can, some trauma is imparted to the cartilage, and patients can go on to have post traumatic arthritis."

HSS orthopedic surgeon Robert Buly, MD, concurs: "By far the most common presentation of osteoarthritis is in someone in their 60s or 70s, but there are a number of conditions where the joints wear out much faster than they should. For a young person who is developing arthritis, our goal is to do whatever is possible to save the joint and hopefully prevent a total joint replacement."

In some cases, Dr. Buly will perform an osteotomy – a surgical procedure in which the bone is cut and reshaped in either the knee or the hip to improve the anatomy and postpone the need



A horseback riding accident as she was training for a competition nearly three years ago left Barbara Matarazzo with a compound ankle fracture requiring major surgery, which was performed by Dr. David S. Levine, and months of physical therapy. Today, she has complete mobility and full rotation of her ankle; her scars are barely noticeable. And when you enter Dr. Levine's office, there now hangs a photo of Barbara jumping a four-foot ditch and the blue ribbon she won with his "help."

for replacing the joint. “This can improve the biomechanics of the joint and provide more surface area between the bone and socket so it’s easier on the cartilage,” explains Dr. Buly. “Hopefully, then, the cartilage will not wear out nearly as fast.”

Edwin Su, MD, is an HSS orthopedic surgeon with a special interest in patients who develop osteoarthritis in their 40s and



Oheneba Boachie Adjei, MD, Chief of the Scoliosis Service, is called upon by patients of all ages who require complex treatment for curvature of the spine.

50s. “People are becoming more active and putting more demands on their weight-bearing joints,” says Dr. Su. “Therefore, joints are wearing out earlier and more quickly. But the active person today is not going to give up the sports that he or she enjoys so much just to put off having surgery.”

“For younger people now, we have changed our philosophy,” says Dr. Westrich. “Patients come in all the time, when previously they would have suffered for years, to take advantage of newer approaches in hip and knee joint replacements. Now we’re able to do partial knee replacements so that just the arthritic compartment is replaced; we’re able to use uncemented, ceramic-on-ceramic hip replacement that allows younger patients to return to a whole host of activities. We’re also able to offer minimally invasive joint replacement for both knees and hips because we now have custom-made, specialized retractors and instrumentation that enable us to spare muscles and tendons, so they get to enjoy life in their 40s, 50s and 60s.”

The Plague of Chronic Back Pain

Perhaps no other musculoskeletal condition plagues individuals in the prime of their life more than back pain. An affliction that can completely disable, back pain is a priority for many of the Hospital’s specialists – the physiatrists and anesthesiologists who use a non-surgical approach to treatment; the radiologists who offer pain management modalities; and the

orthopedic surgeons who step in when the condition cannot be controlled with non-surgical solutions.

“Over a lifetime, about 90 percent of us will have at least one episode of severe disabling low back pain that lasts more than three days,” says Gregory E. Lutz, MD, Chief of Physiatry. “Of these, about 5 percent will have pain that is severe, chronic, and limits daily functions. While most back pain does resolve, it can be recurrent and it can also be constant. Our job is to be the patient’s quarterback, trying to help them through a maze of various therapeutic options.”

“The lower back just does not hold up well over time,” agrees Gregory A. Liguori, MD, Chief of Anesthesiology. “Aggressively treating chronic back pain is a delicate process – trying to provide patients with relief using a variety of narcotics and non-narcotic pain medicines with minimal side effects on a long-term basis. That’s really the art and science of chronic pain management.”

At HSS, back pain is the most frequent type of chronic pain seen. As the spine matures, the common source of lower back pain becomes the disc – the shock absorber made of protein and water that is situated between each spinal segment. “As we age,” explains Dr. Lutz, “you can develop small tears in the rings containing this gelatinous center. They gradually weaken to the point where a protrusion of the disc can develop, impinging nerves and causing pain.”

HSS specialists address back pain one step at a time, beginning with medication to reduce pain and inflammation coupled with strengthening exercises. If medication does not reduce the pain sufficiently, the second stage of treatment may involve applying medication directly to the site of the pathology using



(Right) Dr. Vijay Vad, a physiatrist, prepares for an intradiscal electrothermal therapy procedure to control severe back pain.

Bone: A Building Block of Locomotion

Our bones give shape to our body and provide the framework for support. They are an essential storehouse of vital ions, such as calcium and phosphate, and come together with joints and soft tissues to create a sophisticated system of locomotion. Damage bone and you impair the very basics of form and function.

The physicians and scientists of HSS are acutely aware of the ramifications of diseases which affect bone health on the quality of life for patients – from infants born with osteogenesis imperfecta (OI), who can begin suffering fractures even before birth, to adults in their sixth and seventh decades with osteoporosis, whose bones have become so porous they break without warning.

Finding the causes of these disorders and providing insight for developing therapies to fight their consequences are the life's work of

Cathleen L. Raggio, MD, a pediatric orthopedic surgeon and Co-director of the Skeletal Dysplasia Center.

A Baby's Brittle Bones

For more than a decade, Drs. Camacho and Raggio have been working on understanding OI. “We began by examining the manifestations of the genetic abnormalities in collagen – the major structural protein in bone – and what happens to the actual bone structure to make them so fragile,” says Dr. Camacho. Concerned about the kids living with OI now, however, their research quickly turned to possible therapies.

The quest of Drs. Camacho and Raggio led them to consider treatment currently in use for another fragile bone disease – one associated with aging. “We looked at the relevance of the bisphosphonates, such as Fosamax®, which is

clinically used with great frequency in osteoporosis.” Applying this category of medication to studies of OI, they determined, while not a cure, they did indeed help strengthen bones and reduce fractures.

“Many patients will say, ‘if I can cut my fracture number in half I am still improving my quality of life,’” says Dr. Raggio. “That really gives people some relief, which is very important.” They are now looking at how to optimize dosing for patients and whether these medications can influence fracture healing.

In a new area of research, Dr. Camacho's lab is investigating cellular abnormalities that may contribute to bone fragility. “If we can understand how the osteoclasts – the cells that break down and resorb old bone – react to OI bone versus nor-



Dr. Cathleen Raggio approaches OI – a genetic bone disease with varying degrees of severity – from both clinical and scientific points of view.

mal bone, we hope to be able to identify cell signals that contribute to dysfunctional bone development.”

Aging Bones

At the other end of the spectrum is osteoporosis – one of the country's most prevalent bone conditions and the subject of pioneering research at HSS. Dr. Boskey and her colleagues are investigating the condition from many angles, asking such critical clinical questions as: Why do bones become fragile, what predisposes certain individuals to developing the disorder, and how can we improve bone quality. At the root of the answers are fundamental studies examining how alterations in bone mineral content, matrix composition, and architectural properties converge to cause fractures in some patients and not in others.

“As one of the most active tissues of the body, bone is engaged in a continual process of turnover as new bone is created and old bone is broken down and resorbed,” says Dr. Boskey. “As a result, bone mass varies over an individual's lifespan, and how much is being formed and how much is being lost is critical to understanding diseases such as osteoporosis.”



Dr. Nancy Camacho (left) and Dr. Adele Boskey (right), along with Cathleen Raggio (above), work to reveal the inner workings of bone so that patients with bone disorders – from babies with osteogenesis imperfecta to older adults with osteoporosis – can be spared the consequences of frequent fractures.

Adele L. Boskey, PhD, Director, Musculoskeletal Integrity Program, and Starr Chair in Mineralized Tissue Research; Nancy P. Camacho, PhD, Nancy Dickerson Whitehead Fellow in Musculoskeletal Research; and

an X-ray guided injection of a steroid and anesthetic. Performed by the Hospital's physiatrists, anesthesiologists, or radiologists, these procedures can generally reduce the pain so that patients can return to an exercise program. HSS pain management specialists also offer intradiscal electrothermal therapy in which catheters are placed inside the disc to heat the nerves and eliminate the pain.

"Pain is a complex physiological and emotional experience, which can dramatically affect an individual's life," says Seth Waldman, MD, Director of Pain Medicine in the Hospital's Department of Anesthesiology. Here, anesthesiologists with subspecialty training in pain management are meeting the needs of patients struggling with acute and chronic pain syndromes due to musculoskeletal injuries or disorders. When patients come to see Dr. Waldman, they usually present with pain that has endured beyond medical or surgical treatment for the primary condition. Since coming to HSS more than a decade ago, Dr. Waldman notes that the number of medicines now available to manage pain has nearly tripled, and research into new drugs continue. "More targeted medicines are being developed that can act on specific receptors in the brain that are known to modulate pain."

Addressing Adult Scoliosis

More than three decades ago, as a young teenager, Michele Cohen was diagnosed with scoliosis. "I was given this big horrible brace," she recalls, "which of course I never wore because I was a teenager." Mrs. Cohen ignored her scoliosis for a number of years, but after her fourth child was born, the condition began to worsen and within a year she could barely walk. She returned to HSS to be seen by David B. Levine, MD, then Chief of the Scoliosis Service, who advised exercise. "He



HSS radiologists such as Dr. Carolyn Sofka have specialized expertise and experience diagnosing musculoskeletal disorders using the latest MR imaging techniques.



Having developed scoliosis as a teenager, Michele Cohen had surgery at age 44 to address severe symptoms that developed over time. Now she can enjoy her husband, four children, and two Tibetan terriers pain-free.

said if you exercise and strengthen the muscles around your back, it's very possible that you won't need surgery. The exercises made me strong, but only postponed surgery."

At age 44, Mrs. Cohen learned that correcting her scoliosis would involve two major surgeries. She was referred to Oheneba Boachie Adjei, MD, a pioneer in the development of innovative surgical procedures for scoliosis. "We treat patients with conservative methods as long as possible until we see that they are not making any headway in terms of pain relief, function, ability to walk or stand for long periods, or if they are having neurologic problems such as leg pain, weakness, or numbness," says Dr. Boachie. "Once patients have these difficulties, we can enhance their lives a great deal with spinal surgery. We selectively fuse vertebral levels that need to be fused and leave areas that don't in order to allow for the greatest mobility."

Initially, scoliosis, as it presents in infants, juveniles, or adolescents, is about deformity, not discomfort. "Pain becomes a major issue once they become adults in their 40s, 50s, and 60s," says Dr. Boachie. "They may have developed arthritic changes due to the progressive curving of the spine. They may have developed bone spurs. Or, the rotation and the bending of the curve is affecting the configuration of the spinal canal so that their nerves are compromised."

Following Mrs. Cohen's surgery, not only was she out of pain, she could stand straight and gained three inches in height. "The first day I put on a bathing suit after the surgery, my husband and I stood on the beach and cried. I didn't look or feel like a dinosaur anymore," she said. "That was 11 years ago and I'm still teary about it. It was a life-changing event." ■

65 Plus – A Lifetime of Experience

The ability to lead active, productive, and independent lives beyond the traditional age of retirement is the hallmark of our society today. Yet perhaps during no other chapter in life is musculoskeletal health so vulnerable – subject to the possibility that a lifetime of experience has set the stage for debilitating arthritis and severe osteoporosis.

Osteoarthritis and Aging: Hand in Hand?

Age is the most significant risk factor associated with the development of osteoarthritis, the most common form of arthritis. The condition affects more than 20 million Americans, mostly adults 65 years and older. According to the Centers for Disease Control, by year 2020, when one out of every two Americans will be over the age of 50, there will be a larger increase in new cases of arthritis than of any other disease in the United States.

Staggering statistics? Yes. But the potentially painful and debilitating consequences of the condition are on the radar screen of virtually every physician, researcher, and health professional at HSS. Here, solutions are sought in the laboratories, in doctors' offices and rehabilitation facilities, and in the operating rooms so that patients can trade their physical limitations for an active lifestyle.

“If you look inside a normal joint, you will see cartilage rubbing on cartilage,” explains Dr. Buly. “It’s been described as being five times more slippery than wet ice on wet ice. It’s really miraculous stuff. But if it wears out, gets damaged, or has an infection, you lose the cartilage and then the joint becomes painful and stiff.”

Treatment for osteoarthritis generally begins once patients are symptomatic, but according to Hollis Potter, MD, Chief of Magnetic Resonance Imaging, this is too late. “If we can look at cartilage earlier in the disease process and determine its status on MRI, clinicians would be in a better position to influence the course and outcome of treatment.”

At HSS, patients with osteoarthritis generally have their care overseen by a rheumatologist. “The rheumatologist will determine a diagnosis, recommend and monitor relevant therapies, and coordinate all aspects of care, including joint replacement surgery, if indicated,” says Steven K. Magid, MD.

Getting to Know You

Osteoarthritis and other rheumatological diseases tend to evolve over years or decades. Because of this, HSS rheumatologists have a high degree of clinical skills, they are great listeners, and have keen powers of observation. “Since many of the diseases we treat are chronic and without a cure,” says Dr. Magid, “patients are looking for a health care provider who is able to forge a long-term relationship – somebody who can get to know them and understand how they make choices. And every victory is monumental and shared.”

Dr. Magid has been sharing challenges and triumphs with his patients for nearly 30 years. Five years ago, he met Alex Tartaglia. In his mid-sixties, Mr. Tartaglia began to have searing, nearly disabling pain – first in his left hand and then moving into his hips and shoulders. “My symptoms came on very fast,” he recalls. “I just wanted the pain to stop.” Mr. Tartaglia came to see Dr. Magid to determine its source.

A diagnosis of rheumatoid arthritis (RA) – determined after a thorough evaluation and trials with various medications – was a bit of a surprise. The symptoms did not initially fit the profile of the course of this autoimmune disease, which generally strikes in mid-adulthood. And the RA factor – an indication that the disease is present – was absent in early blood tests. Once RA was established, Dr. Magid prescribed methotrexate for Mr. Tartaglia and slowly the disease came under control.



Prior to having joint replacement surgery, patients like Chandran Panicker (left) participate in a pre-operative education program led here by Lisa Briskie, RN.

“I began to feel progressively better and, after two years, there was a more significant change and I was feeling a bit more like normal,” says Mr. Tartaglia. Today, with his rheumatoid arthritis in check, he continues his multifaceted career as a screenwriter/producer and an actor; you just may catch him in brief appearances on *The Sopranos* or in reruns of *Sex and the City*.



Dr. Geoffrey Westrich (right), assisted by Dr. Steve Kim (center), and Dr. Scott Ellis (left), perform joint replacement surgery on Chandran Panicker to replace both of his knees, which were severely compromised by osteoarthritis.

Whether a patient's joints are damaged by osteoarthritis or rheumatoid arthritis, HSS physicians follow a plan of action that begins with medications and physical therapy, and moves toward joint replacement surgery when more conservative approaches no longer suffice. These procedures continue as the definitive treatment for severe arthritis, while investigations of methods that may either halt the progression of cartilage degeneration or stimulate growth continue in the Hospital's laboratories.

Perspectives on Osteoporosis

Natalie Riback is one of 10 million individuals in the United States estimated to have osteoporosis – a disorder in which bones lose their density and their internal micro-architecture deteriorates. For many of its victims, spontaneous fractures of the spine, hip, and wrist, as well as other sites, can become common occurrences. These fractures can start a chain of events that can turn the most active person sedentary and housebound. This was not to be for Mrs. Riback.

Typifying the New York fighting spirit, Mrs. Riback had already endured a hip replacement years earlier and, more recently, cardiac surgery. As part of her cardiac rehabilitation,

she was told to walk as much as possible. “The problem was, when I walked, I was in a lot of pain,” she says. Mrs. Riback suffered on and off for a year with back pain. Epidural treatments helped initially, “but I wanted a much better way of life. I didn't want to be crippled, so to speak, or inhibited, and it was very important that I continued to walk.”

Diagnosed with osteoporosis of the spine, Mrs. Riback came to Joseph Lane, MD, Chief of the Metabolic Bone Disease Service, who performed kyphoplasty – a minimally invasive procedure that involves the use of a balloon to restore the vertebral body height and shape, followed by an injection of bone cement to strengthen the spine. At HSS, Dr. Lane and his colleagues are using this procedure not only to eliminate painful fractures, but also to improve posture, overall mobility, and cardiopulmonary function.

Mrs. Riback was eager for the procedure to ease her back pain. “I wanted to be a whole person again. I have no patience for not being able to do things.” One year later, she reports, “I feel much better...much stronger and more able to get around. I'm not 100 percent, but I know I'm on my way.”

“Osteoporosis has changed in its definition,” says Dr. Lane. “Originally defined as inadequate bone mass, it is now defined as an entity in which there are low energy fractures related to several components, including inadequate bone mass, but also poor distribution of the bone mass.”

Often referred to as a pediatric disease with geriatric consequences, osteoporosis has its origins in the nutritional habits of toddlers, young children, and adolescents, who, for the most part, do not get enough calcium and vitamin D, which is needed to metabolize the calcium appropriately.

Rheumatologist Linda Russell, MD, has a particular interest in osteoporosis prevention and stresses the importance of increasing calcium and vitamin D intake at an early age to avoid the debilitating effects of osteoporosis in later years. “It is especially important for children and adolescents to get enough calcium and vitamin D, because the higher their peak bone mass is at 30 – the age when we begin to lose mass – the more bone they will have to lose over their lifetime,” she says.

According to physiatrist Julie Lin, MD, multiple studies have corroborated that weight-bearing and resistance exercises are also extremely protective. “You can definitely increase your bone density through exercise,” says Dr. Lin. This is particularly true in children and young adults, who appear to derive



Following a procedure to help her recover from a vertebral fracture brought on by osteoporosis, Natalie Riback was able to return to exercising.

the greatest benefits. “There is no doubt that for many reasons exercise is beneficial to the bone and overall musculoskeletal system. It helps in coordination, balance, increasing muscle strength, and agility, which protect against falling.”



As a rheumatologist, Dr. Linda Russell is on the lookout for osteoporosis in her patients, which can result from medications used to treat rheumatoid arthritis.

In the Hospital’s Osteoporosis Prevention Center, patients can obtain a complete assessment of their risk for developing the condition. In the Department of Radiology and Imaging, Nuclear Medicine Division, patients have access to the most advanced equipment for obtaining bone scans. “We recently acquired a dual head camera, which allows us to perform bone scans much more quickly and more accurately,” says Robert Schneider, MD, Chief of Nuclear Medicine. “This test is very sensitive and provides important information about the skeleton and enables us to detect an impending insufficiency fracture in a patient with osteoporosis or osteomalacia before a complete fracture occurs.”

Ageless Agility

“People slow down a little bit as they approach their seventies,” says Thomas P. Sculco, MD, Surgeon-in-Chief, “but I think, regardless of age, they want to be active. If you look at patients in my practice, for example, they are 75 years old, but they are skiing, playing golf, and traveling all over the world. Thirty or forty years ago, people in this age group were sitting around reading a book. It is a different world today, and the expertise offered at HSS reflects this – providing care that will encourage mobility through all generations.”

Stephen A. Paget, MD, Physician-in-Chief, concurs. “That’s why we are here. From the second you’re born, we take care of you in any way that life demands us to. Our focus follows a continuum of age; it begins with prevention and heads toward a cure, maximizing mobility and function along the way.” ■



A combination of outstanding clinical care, medications, physical therapy, and acupuncture came together to stabilize Alex Tartaglia's rheumatoid arthritis. Able to resume his career as screenwriter/producer and actor, he also enjoys days out and about in Manhattan.

HSS Patients: Then and Now

Over the years, HSS has transformed the lives of countless patients of all ages, restoring their freedom of movement and giving new meaning to their lives.

We are pleased to reintroduce you to some of these patients who have been profiled in past issues of *Horizon*.

Deborah Van Bourgondien was a busy executive of a large wholesale distributing company of flower bulbs and perennials when, 10 years ago, she underwent hip replacement surgery. Pain free today, she says she wishes the rest of her body “worked as well as her hip!” Describing herself as

the “number one fan” of her surgeon, Paul M. Pellicci, MD, Ms. Van Bourgondien has referred a number of friends to him for similar treatment. Before her surgery, she couldn’t garden or golf. “Last week, I broke 90 on the golf course,” she says.





For the past eight years, **Anabel Andujar**, 18, has coped well with the challenges of lupus. “I just can’t stay still – I’m always on the go,” says Anabel, who hopes one day to illustrate children’s books. Despite a recent flare-up of the disease, she is optimistic that Thomas Lehman, MD, and Liza Vazquez-Cobian, MD, will help her through it. “I love my doctors!” says Anabel.



When severe hip and shoulder pain prevented **Linda Hackett** from enjoying life, she did something about it. In 1999, Thomas P. Sculco, MD, replaced her hip, and three months later, Edward V. Craig, MD, replaced her shoulder. Today, Ms. Hackett and her husband spend part of the year in Idaho skiing and hiking, and in between, she enjoys walking the streets of New York. “I am doing really great,” she says.



After a water-skiing accident shattered **Michael Philp’s** knee, Thomas L. Wickiewicz, MD, performed several surgeries involving a cartilage transplant and bone graft to reconstruct his knee. Eleven years later, “my knee is holding up just fine,” reports Mr. Philp. A former runner, he now enjoys long-distance cycling. “Dr. Wickiewicz is just phenomenal.”



In 2000, **Gina Jones** sought treatment for lupus at HSS, and that’s when, she says, “Everything began to improve.” Today she is doing very well, and is “eternally grateful” to Jane E. Salmon, MD, and HSS staff for their commitment to her recovery. “They gave me hope,” says Ms. Jones, who returned to work and subsequently earned a second master’s degree.



For two years, a mysterious infection left **John Quinn** bedridden and seriously ill. Fortunately, Steven K. Magid, MD, diagnosed a staph infection and placed him on prolonged antibiotic therapy. After a full recovery, Mr. Quinn now fills his life with numerous interests, including traveling extensively throughout the world. In fact, he and his wife will soon make their third visit to South Africa.



Helen Cranch was born with cerebral palsy. At age 7 and unable to stand, Helen came to see Leon Root, MD. Today, she has her mobility back, assisted with a walker or a motorized wheelchair. At 16, she is a sophomore in high school, on the honor roll, and swims the 25-yard backstroke in the Empire State Games. “Helen is doing beautifully,” says her mother, Connie Cranch.



In 2003, when University of Rhode Island pitcher and major league hopeful **Dave Lipson** tore the medial collateral ligament in his right elbow, David W. Altchek, MD, performed reconstructive surgery. Following rehabilitation at HSS with Mickey Levinson, he started training again. “My arm is completely recovered, and I’m throwing even a little harder than before,” he says. “Dr. Altchek did a bang-up job on me.”



Suffering from painful basal joint arthritis in both thumbs, **Irene Vale** came to Robert Hotchkiss, MD, for help. Eight years later, after two surgeries to replace the affected joints, Ms. Vale is “doing fabulously” and continues to enjoy skiing and an active lifestyle. “After the operations, I had zero pain and total mobility,” she says. “I can’t praise Dr. Hotchkiss enough.”



Successful knee replacement surgery by Mark P. Figgie, MD, in 1996 has kept **Nellie Tyler** living a normal, active life, and, as she says, “doing what I have to do.” Ms. Tyler tries to get out and about as often as possible, though recently her asthma makes that sometimes difficult. Occasionally she sees Dr. Figgie for a checkup, but so far her knee is holding up just fine. “Dr. Figgie is the best!” she adds.



A sports injury in his 20s left **Hans Storr** with badly torn ligaments in his right knee. In 1992, he underwent knee replacement surgery. However, by 2000, his left knee developed arthritis, and Russell E. Windsor, MD, performed a partial knee replacement. “I’m getting around very well,” says Mr. Storr, adding that while he had to give up tennis, he is still enjoying the sporting life.



In 1981 and 1983, **Edith Perman-Allen** underwent two hip replacements performed by Philip D. Wilson, Jr., MD. The new hips enabled Mrs. Perman-Allen to continue to travel the world, volunteer, and enjoy her children and grandchildren. Six months ago, she underwent another hip replacement, performed by Douglas Padgett, MD. Recovering, she is hoping for the same good results.



Born with osteogenesis imperfecta (OI), a disease that causes “brittle bones,” **Josh Schwed** experienced some 15 fractures in his young life. For the past 15 years, he has been in the care of Cathleen L. Raggio, MD, and now takes Fosamax® to help build bone mass. Now a sophomore in college, he says “Having OI hasn’t stopped me from living, I just have to be more cautious.”

Ensuring the Future of HSS

A Note of Thanks

In recalling the accomplishments of her life as a mother of three daughters, and as a pianist, Susan W. Rose is “incredibly grateful” to the doctors at Hospital for Special Surgery.

Mrs. Rose’s 45-year relationship with HSS began in 1960, when at the age of 19, she suffered a near-fatal automobile accident and sustained multiple, serious injuries. After awakening from a 13-day coma in a New Jersey hospital, she was taken to Hospital for Special Surgery, where she was cared for by orthopedic surgeons Philip D. Wilson, Sr., MD, and his son, Philip D. Wilson, Jr., MD.

“My life and mobility were changed by the excellent care I received at HSS,” says Mrs. Rose. “The doctors helped me to go on to have a normal life.”

After several months, Mrs. Rose left the Hospital – and following a period of rehabilitation – returned to continue her studies at Smith College, proud to be walking without a limp. Upon graduation, she pursued a career in music and became a piano teacher and an accomplished pianist with three CDs to her



Susan W. Rose

credit. She is a trustee of Carnegie Hall, where she and her husband have given the Rose Museum, and of The Juilliard School, where she has endowed the piano chair.

Over the years, she returned to HSS for several small surgeries related to injuries stemming from her accident. Four years ago, she developed severe osteoarthritis in her right ankle and has been cared for by Jonathan Deland, MD. A gift from Mrs. Rose helped fund the establishment of an outcomes research center within the Foot and Ankle Service, headed by Dr. Deland, as well as a distinguished visiting professorship for the center.

“When I talked about the idea with Dr. Deland, I was so satisfied to find out that the recipient of my gift had already received an NIH grant and two grants from the Orthopaedic Research and Education Foundation,” says Mrs. Rose. “The excellence of the doctors and the staff at the Hospital inspires my confidence. The Hospital is a treasure in NYC and worldwide in orthopedics and rheumatology, and we must help in sustaining that leadership through generous support.”

For several years now, Mrs. Rose has honored her knee doctor, David Altechek, MD, by supporting his research. Most recently, she made a significant gift in honor of another of her physicians, Steven K. Magid, MD, to support patient safety outcomes research and the computerization of medical records.

In her many years as a friend and patient of HSS, Mrs. Rose is continually impressed by the coordination of care, rehabilitation, and follow-through of staff. “One of the pluses of this wonderful institution is that they cover all the bases,” she says. “There is an interconnection between doctors and departments, all geared to a patient’s total well-being.

“They also don’t let go of patients until they are 100 percent,” she says, adding that the patient must “meet the care plan” halfway. “It’s a partnership between patient and doctor and you’re not let go of...ever.”

Calling herself an “excellent patient,” Mrs. Rose puts special effort into her own ongoing rehabilitation. She swims regularly and performs the recommended exercises each day, even when

traveling around the world. On a recent trip to the Okavango Delta in Botswana, Africa, Mrs. Rose continued her leg-lift exercises with special travel weights filled with water. “I lifted my weights in camp every day,” she says, “then let the water out and packed up the weights for the next stop.”

Though she is unable to run due to her previous injuries, she is grateful to lead a full and normal life. “I have a very positive attitude, and that’s an important part of the mixture,” says Mrs. Rose, noting that the doctors at HSS are also very upbeat. “At this point in my life, I am finally in a fortunate position to give a major gift to the Hospital and that gives me enormous joy.” ■

Making a Difference

Throughout her life, Valerie D’Angelo has given 100 percent and then some in all that she has pursued. “That attitude and mindset set the foundation for helping me to face the trials I would encounter,” says Ms. D’Angelo, who, since the age of 8, has suffered with Ehlers-Danlos syndrome – a connective tissue disorder that causes collagen to become especially elastic, resulting in significant joint pain and excessive flexibility.

For years, doctors described the pain in her knees as growing pains, or told her that she was simply loose jointed. Despite the pain, she continued to play sports, but by 15, she could no longer go up or down steps. An orthopedist recommended a strengthening program followed by rest, a routine she followed with little improvement. Numerous doctor visits and dozens of surgical procedures to “tighten loose joints” left her with no relief.

Finally, in 1999, at the age of 24, she was diagnosed with Ehlers-Danlos syndrome. “I was relieved to have a definitive answer, but still had so many questions as to how to proceed,” she says. Shortly after, Ms. D’Angelo suffered a severe dislocation of her shoulder. She spent countless hours on the Internet searching for specialists in shoulder instability. “HSS and Dr. Scott Rodeo came up on my screen,” she says, “and I began to hope that he could provide the answer to my problems.” An orthopedic surgeon who specializes in shoulder instability and trauma as well as in research of soft tissue disorders, Scott Rodeo, MD, performed surgery to repair her injury.

Dr. Rodeo’s “unrelenting effort to help people living with soft tissue disorders,” prompted Ms. D’Angelo to designate HSS as the beneficiary of her life insurance policy, providing vital support to the Hospital for future research endeavors. In fact, life insurance is a particularly astute financial way for younger people to make a future gift. It is also a strategy for older adults to consider if they no longer need all of their life insurance coverage. “Each person can make a difference by giving. Without the support for research at HSS, I don’t know if my story would have been a successful one.”



Valerie D’Angelo

Today, at 33, Ms. D’Angelo is a physical therapist. Inspired by the dedicated care of her long-term physician in Smithtown, New York, Edward S. Mango, MD, who directed her to HSS, and the expertise she found there, she is now exploring the possibility of entering medical school. “Dr. Rodeo’s impact on my life has persuaded me to pursue my clinical and research interest in connective tissue diseases,” she says. “Perhaps in the near future there will be treatments, and possibly a cure for my condition. Until then, it is a comfort to know that Dr. Rodeo and the other compassionate doctors at HSS are there for me.” ■

2004 Leadership Report



Francesco Ramirez, PhD, Chief Scientific Officer; Dean R. O'Hare, Co-Chair of the Board; Thomas P. Sculco, MD, Surgeon-in-Chief; Aldo Papone, Co-Chair of the Board; John R. Reynolds, President and CEO; and Stephen A. Paget, MD, Physician-in-Chief, present the Hospital's newest inpatient operating room, which was recently constructed to help accommodate the increasing volume of patients needing our expertise in orthopedic surgery.

Growth on many fronts underscored a number of exciting initiatives at Hospital for Special Surgery in 2004, setting the stage for a future course that will advance our role as the worldwide leader in the specialties of orthopedics, rheumatology, and their related disciplines.

Challenged by the need to respond to the ever-increasing number of patients who come to us for musculoskeletal care, we ended the year with approval from the State of New York to move forward with our \$201 million hospital expansion plan. With construction scheduled to begin in 2005, new and upgraded facilities will provide an extraordinary clinical and scientific environment that will enable us to grow and enhance patient care services and accommodate new initiatives that support HSS's medical, surgical, research, and education excellence.

Focusing on Patient Care

In 2004, HSS continued to develop new important initiatives to improve patient care and received important recognition for its efforts. In June, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) conducted its survey of HSS utilizing a new accreditation process, *Shared Visions – New Pathways*. The new methodology shifts its previous focus to one of continuous operational improvement that emphasizes patient safety, high quality care, treatment, and services. The new survey devotes 10 percent to documentation review and 90 percent to interaction with staff and patients. Thanks to the diligence and commitment of all employees – with exceptional leadership from HSS Vice President Marion Hare and special credit to our nursing staff – HSS passed JCAHO's standards with high marks, once again exceeding expectations.

The medical staff, along with the Department of Nursing, the Department of Rehabilitation Services, and the Department of Patient Care and Quality Management, collaborated closely on a number of programs to enhance care for our patients. An interdisciplinary team was formed to coordinate a "rapid recovery" program for patients undergoing total hip replacement arthroplasty. The team modified current clinical pathways, reducing them to a two-day length of stay hospitalization for patients who are candidates for rapid recovery protocols. Patients who participate undergo a comprehensive pre-op screening, participate in an intensive post-op pain management program, and follow a plan for earlier mobilization supervised by physical therapists. Plans are now underway to develop rapid recovery programs for patients undergoing total shoulder replacement and total knee replacement.

In 2004, the Nursing Department, along with team members from pediatric rheumatology, pharmacy, social work, nutrition, and administration, developed an innovative Ambulatory Pediatric Infusion Program to treat children with rheumatological diseases that affords an integrated support system for young patients and their families. Staffed by nurses trained in infusion therapy, the program provides comprehensive care that includes ongoing surveillance of symptoms and treatment response, and health education.

To increase patient safety and reduce noise, the department has installed a Hill-Rom nurse call system on all inpatient units. The new system eliminates overhead paging and provides for a locator badge worn by staff to quickly identify the appropriate caregiver to respond to patients and staff.

In 2004, HSS nurses received the Sigma Theta Tau National Honor Society of Nursing's Pinnacle Award for Developing and Disseminating Knowledge through e-Learning. The award, given for outstanding instructional use of a computer for student and professional nursing continuing education, was shared among nursing and organizational learning and development staff who collaborated on the project.

The Department of Patient Care and Quality Management has expanded its patient service liaison program. In addition to having staff available in the fourth floor atrium to provide communication for family members and friends of patients having inpatient surgery, the Department has replicated the program in the Ambulatory Surgery Center on the first floor.

Keeping Pace with Technology

HSS continues to pursue partnerships with industry leaders in health and technology in the development of products and technologies that will help to improve patient care in orthopedics and rheumatology. We are currently working with a company to develop a total spine surgical instrumentation and device system, as well as exploring new surgical navigation and robotics tools for minimally invasive surgery.

Advanced technologies in the Department of Radiology and Imaging are transforming diagnostic and therapeutic musculoskeletal treatments. HSS radiologists are employing targeted ultrasound-guided injections and aspirations, as well as Doppler imaging, to evaluate vascularity and post-surgical tendon healing. A new nuclear medicine dual head camera and a 16-slice multi-detector CT scanner, in addition to five MRI scanners, including a 3T and an open 0.7 T unit, are among the latest imaging tools to facilitate delivery of state-of-the-art patient care. HSS is currently moving toward the next

New Doctors at HSS

HSS continues to recruit outstanding physicians who enable us to remain a leader in our fields and serve the ever-increasing number of patients who come to us for musculoskeletal care. Please join us in welcoming: Alejandro Gonzalez Della Valle, MD, Russel C. Huang, MD, Bryan T. Kelly, MD, and David M. Scher, MD to the Department of Orthopedic Surgery; Stephen DiMartino, MD, PhD, and Ioannis Tassioulas, MD, to the Division of Rheumatology; Moris Jak Danon, MD, who was named Chief of Neurology; pediatricians Hyan Susan Cha, MD, and Lisa S. Ipp, MD; anesthesiologists Devan B. Bhagat, MD, and Enrique A. Goytizolo, MD; and psychiatrist Jennifer L. Solomon, MD.



Alejandro Gonzalez Della Valle, MD



Russel C. Huang, MD



Bryan T. Kelly, MD



David M. Scher, MD



Stephen DiMartino, MD, PhD



Ioannis Tassioulas, MD



Moris Jak Danon, MD



Hyan Susan Cha, MD



Lisa S. Ipp, MD



Devan B. Bhagat, MD



Enrique A. Goytizolo, MD



Jennifer L. Solomon, MD



Internationally renowned spine surgeon Patrick F. O'Leary, MD, who completed his orthopedic residency at HSS and has practiced in New York City for more than two decades,

will enhance the Hospital's spine program with his expertise in the surgical management of cervical, lumbar, and thoracic spine disorders.

wave of radiographic imaging technology – digital radiography – which will replace radiographic film allowing for instant review by the radiologist and referring physicians simultaneously. Implementation is also underway of a Picture Archiving and Communication System (PACS), which will permit the electronic storage of medical images for instant retrieval throughout the Hospital and medical offices. This enormous endeavor will further streamline and enhance our imaging services.

Patient safety will be greatly enhanced with the upcoming implementation of the new Eclipsis clinical information system. This system will enable us to improve the quality of care through automation of manual workflow processes. The features and benefits of CIS include: computerization of physician/prescriber order entry, electronic documentation and results reporting, and access to patient information anytime and anywhere.

We urge you to visit our redesigned Web site (HSS.edu), where you will find a user-friendly format with a broad range of information on musculoskeletal diagnosis and treatment modalities, interesting articles, as well as assistance with physician referrals.

At the Forefront of Musculoskeletal Research

Our efforts in research represent another example of the growth and vitality taking place at HSS. With extraordinary public and philanthropic support for *Discovery to Recovery*, the Campaign for Research, we are able to greatly expand the level and breadth of our research activities.

The renovations of the Caspary Research Building are now complete with nine floors dedicated to research. To enhance the Hospital's research mission, the Research Division, under the direction of Francesco Ramirez, PhD, has integrated its basic research laboratories into well-defined, focused programs. In 2005, we will turn our efforts to our clinical research program, with a goal toward bridging the work of our basic scientists and our clinicians. Two specific areas will be developed – one devoted exclusively to clinical trials and a second focused on health services research.

In September, we welcomed three exceptional scientists to our staff: Carl P. Blobel, MD, PhD, Paul Edward Purdue, PhD, and Inez Rogatsky, PhD, all work within the Arthritis and Tissue Degeneration Program under the direction of Lionel Ivashkiv, MD.

In 2004, HSS received more than \$11 million in new federal grants – with the majority awarded from the National Institutes of Health (NIH) – to fund basic and clinical research activities. Eric Meffre, PhD, Dr. Ivashkiv, and Peter Torzilli, PhD, are the principal investigators for three of these grants, totaling

close to \$5 million. Dr. Ramirez also received a five-year \$6 million program project grant for research he and his collaborators at Johns Hopkins University, New York University, and University of Oregon Health Sciences are undertaking on Marfan syndrome.

The Educational Advantage

We took a significant step within the Division of Education last year by centralizing HSS's medical training programs and computerizing all related data. The ability to manage, evaluate, and document the work of nearly 100 residents and fellows via a computer-based program will enhance academic training while streamlining department operations. In addition, we have expanded our educational modalities, emphasizing Internet-based programs, CD-ROMS, and monographs, all of which will help extend our reach into the professional community.

We accepted eight residents from over 450 candidates for our orthopedic residency program, which continues to be ranked higher than any other training program in the country. HSS currently has 44 orthopedic residents, 28 orthopedic surgery fellows, 12 rheumatology fellows, six fellows in anesthesiology, and two in psychiatry. Our fellowship programs continue to increase annually. The Department of Radiology and Imaging subspecialty musculoskeletal fellowship program has grown tremendously, currently boasting seven clinical and two research fellows.

In an effort to continue our leadership in education and training, the Hospital has also created its own peer-reviewed professional journal – the *HSS Journal* – that will have its debut issue published this summer, reaching orthopedic surgeons, rheumatologists, and other specialists. The *Journal* will also be promoted on the Web site with world-wide reach.

Hallmarks of Excellence

Hospital for Special Surgery physicians and health care professionals are regularly cited for their outstanding work and achievements. For the 14th year in a row, the Hospital has been ranked first in the Northeast in orthopedics and rheumatology in *U.S. News & World Report's* 2004 "America's Best Hospitals" publication. HSS is the only hospital in the New York metropolitan area to rank in the top 10 nationwide in these specialties. The Hospital also received a five-star rating for clinical quality and performance excellence in hip and knee replacement surgery according to HealthGrades, the nation's leading health care quality rating company. The Hospital's ratings place it among the top 5 percent in the country



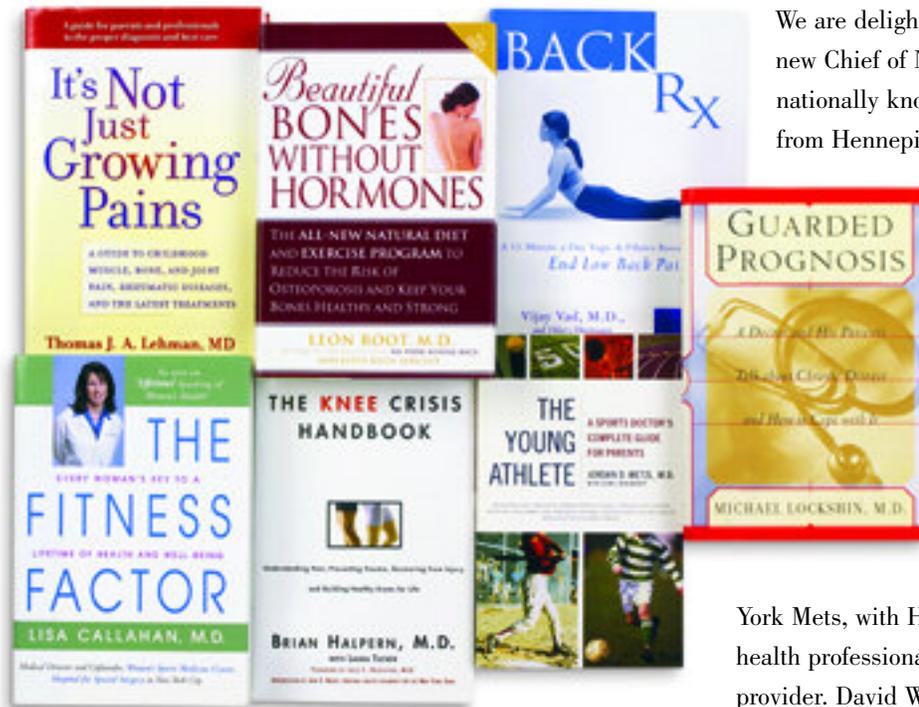
Marc S. Levine/NY Mets

Among the many teams of national standing cared for by HSS physicians are the New York Mets.

for orthopedic services. And *New York Magazine's* "Best Doctors 2004" issue honored more than 30 HSS physicians.

Among the many individuals recognized in the last year are Stephen A. Paget, MD, who received the Lifetime Achievement Award from the Arthritis Foundation; Thomas P. Sculco, MD, who received the Gold Medal for Lifetime Achievement in Clinical Medicine from Columbia University College of Physicians and Surgeons; Andrew Weiland, MD, who was elected a member of the prestigious Johns Hopkins Society of Scholars; William Urmev, MD, who received the Nils Lofgren Award at the American Society of Regional Anesthesia Meeting for significant contributions to the practice of regional anesthesia, and Helene Pavlov, MD, who received the Kappa Delta Orthopaedic Research Award – considered the highest recognition of excellence and promise in orthopedic research – from the American Academy of Orthopaedic Surgeons.

We also offer congratulations to Peter Bullough, MD, for receiving the Founder's Medal at the 2004 International Skeletal Society meeting; to Gregory Lutz, MD, who was named recipient of the Rosenthal Award from the American Academy of Physical Medicine and Rehabilitation; to Jo Hannafin, MD, who was awarded the Jack Kelly Award by USRowing; and to David Pollack, RN, BSN, CNOR, on receiving the Association



HSS physicians and health care professionals have received acclaim as prolific scientific and clinical authors, with articles routinely published in peer-reviewed journals. Many have also penned popular consumer-oriented books, helping the public better understand musculoskeletal concerns that range from pediatric disorders to physical fitness.

of PeriOperative Registered Nurses' 2004 New York City Chapter Award.

Our congratulations to Michael Lockshin, MD, who has been named Editor-in-Chief of *Arthritis and Rheumatism*, the premier journal in rheumatology, and to Laura Robbins, DSW, for being elected Chair of the Arthritis Foundation. Additionally, Peggy Crow, MD, has been named President-elect of the American College of Rheumatology; David Dines, MD, was recently elected President of the American Shoulder and Elbow Surgeons; Dr. Francesco Ramirez was elected President of the American Society for Matrix Biology; Dr. Thomas Sculco has been named Treasurer of the Knee Society and elected to its Board of Directors; Lisa Callahan, MD, has been elected to the Board of Directors of the American Medical Society for Sports Medicine; and Sherry Backus, MA, PT, has been elected President of the Gait and Clinical Movement Analysis Society.

We also take great pride in honoring Oheneba Boachie-Adjei, MD, who received the 2004 Wholeness of Life Award from The HealthCare Chaplaincy for his outstanding contributions to patient care at HSS, as well his efforts to improve orthopedic care in Ghana and the West Indies; and Joseph Lane, MD, for becoming the first orthopedist to receive the Physician of the Year award at CancerCare's annual program.

We are delighted to welcome Moris Jak Danon, MD, as our new Chief of Neurology. Dr. Danon, a nationally and internationally known nerve and muscle pathologist, joins us from Hennepin County Medical Center in Minnesota,

where he was also Professor of Neurology at University of Minnesota Medical School. Dr. Lisa Ipp from Weill Cornell Medical College has been named Chief of Pediatrics at HSS.

Extending Our Expertise

In the U.S. and abroad, HSS is extending its expertise to improve musculoskeletal health. Stateside, the Hospital has renewed its relationship with the New

York Mets, with HSS's sports medicine physicians and other health professionals serving as the team's official medical provider. David W. Altchek, MD, orthopedic surgeon and the former team doctor for the Mets, has been named the Mets medical director; Answorth A. Allen, MD, is team physician; Struan H. Coleman, MD, PhD, and Andrew Pearle, MD, serve as associate team physicians. In addition to the Mets, HSS sports medicine doctors and physical therapists are team physicians and athletic trainers for the New York Giants, the Association of Tennis Professionals, the U.S. Rowing Team, St. John's University Athletics Department, Iona College Department of Athletics, and City University of New York Athletic Conference. In addition, Lisa Callahan, MD, was appointed director of player care for the New York Knicks.

HSS also cares for many retired athletes having recently formed a partnership with the National Basketball Retired Players Association and the Major League Baseball Alumni Association. They have selected the Hospital as the provider of choice for their members in need of musculoskeletal care and treatment. Through the HSS ProCARE Network, athletes can receive treatment from HSS alumni near their homes as well as at HSS.

We continue to enjoy a mutually beneficial relationship with Weill Medical College of Cornell University and continue to develop our affiliation with the New York-Presbyterian Healthcare System.

Overseas, the Southwest London Elective Orthopedics Center – where HSS has transferred its best practices patient care treatment protocols – is thriving, performing some 3,500 joint replacements a year. Building on this very successful program, the Hospital is developing similar relationships with other facilities throughout Great Britain. We were recently visited by the

British and Irish Ministers of Health, who are interested in using HSS as a model to improve the quality of their healthcare system. These and other worldwide efforts will be explored and pursued with the guidance of the Hospital's International Advisory Council chaired by Sir Dennis Weatherstone.

In May 2004, to further showcase the breadth of services that HSS has to offer, we debuted a new advertising campaign in *The New York Times*. Under the theme, "capabilities," the ads capture the depth of our expertise in musculoskeletal care as well as highlight our research.

With Help from Friends

HSS continues to flourish thanks to the support of countless grateful patients and other individual, corporate, and foundation donors. The Hospital raised nearly \$27 million – an increase of more \$3.7 million over 2003, making 2004 one of the most successful in HSS's history. Seven gifts totaling \$1 million or more came from private sources. HSS also received \$2.4 million from government sources.

The outpouring of support helped the Hospital move closer toward reaching its goal for *Discovery to Recovery*, the Campaign for Research, a major fundraising effort to sustain and enhance our research mission. Donors contributed more than \$16.5 million to research by year-end, bringing the total raised for the campaign to \$104.7 million – 95 percent of our goal. A \$1 million pledge by David H. Koch, which matched an anonymous \$1 million challenge grant, endowed a newly created chair for Arthritis and Tissue Degeneration Research. Lionel Ivashkiv, MD, heads the program that connects basic, translational, and clinical research and will hold the Koch Chair.

On October 4, friends of HSS gathered for a ceremony to celebrate the dedication of the James D. Farley Family Laboratory for Connective Tissue Genetics in honor of the Farleys, who have been longtime HSS friends and strong supporters. Mary Kay Farley is a highly regarded HSS trustee. On October 28, we dedicated the William Randolph Hearst Advanced Imaging Core. The Hearst Foundation has supported HSS for more than 30 years.

Fifty Years at 535 East 70th Street

In 1955, six years after affiliating with the then New York Hospital-Cornell Medical Center, HSS moved to its fourth and most well-appointed home to date – a brand new facility located at 70th Street and the East River on riverfront property acquired as part of the affiliation agreement. The new Hospital – a superb institution designed to provide the latest in musculoskeletal care – opened its doors for patients on May 25, 1955. At the time, the average length of stay was nearly 25 days...so the new facility's beautiful therapeutic pool, a public school for our young patients, a solarium at the east end of each unit, and a terrace roof garden overlooking the river were especially appreciated by those confined by the extended recovery periods.

That same year, Philip D. Wilson, Sr., MD, stepped down as Surgeon-in-Chief after more than two decades of service and assumed a new role as Director of Research. T. Campbell Thompson, MD, considered an innovator of many orthopedic operations, took over the helm as Surgeon-in-Chief.



T. Gordon Young, HSS administrator (second from left), oversees the move from East 42nd Street to the new hospital site, which took less than two and a half hours. (Top) A rendering shows the new \$6 million hospital building on East 70th Street.

Timing is everything: The same time that the Hospital acquired its new building site, it also obtained, for \$400,000, the property rights next door. In 1960, this property became the site of the Alfred H. Caspary Research Building.

"In 1863, when James Knight founded his 28-bed Hospital for the Ruptured and Crippled, which eventually was renamed the Hospital for Special Surgery in 1940, little did he know that his hospital one day would become one of the world's leading institutions in musculoskeletal research, education, and patient care," said David B. Levine, MD, HSS orthopedic surgeon emeritus, and now the Hospital's archivist.

In the Hospital's 50th anniversary year of its home on the East River, we rededicate HSS's commitment to patients who need our care, the physicians who excel in medical and surgical solutions, and the scientists who reach for the cures for musculoskeletal conditions.

Most recently, in March 2005, we paid tribute to the legacy of Franchellie M. Cadwell, whose \$9 million bequest to the Hospital was the largest in HSS's history. Ms. Cadwell's bequest is supporting two significant chairs in research: the Franchellie M. Cadwell Chair to be held by rheumatologist Sergio Schwartzman, MD, and the Collette Kean Research Chair, to be held by senior scientist Jane Salmon, MD. It also supports the Charles Christian Research Fellowship in honor of Dr. Christian, HSS Physician-in-Chief Emeritus. The fellowship was presented to Ioannis Tassioulas, MD. In addition, the fourth floor laboratories in the Hospital's research building have been named in Ms. Cadwell's honor, and a program of cooperative research with Weill Cornell Medical College has been established honoring Ms. Cadwell's mother, Margaret.

In June, more than 900 friends and members of the HSS community came to the World Financial Center's Winter Garden to celebrate the 21st Annual Tribute Dinner, which raised more than \$1.9 million making it a record-breaking success. The event honored Kenneth I. Chenault, Chairman and CEO of American Express Company, for his commitment to HSS and to New York, and Leon Root, MD, for his many contributions to the field of musculoskeletal disease. Dr. Root received HSS's first Lifetime Achievement Award recognizing his 37 years of service to the Hospital as one of the nation's most caring orthopedic specialists. Mayor Michael Bloomberg and Senator Charles Schumer paid tribute to our honorees and to HSS. Special thanks go to the evening's Chair, Peter Dolan, Chairman and CEO, Bristol-Myers Squibb Company.

In November, 300 supporters attended the seventh annual theatre benefit for a performance of *La Traviata* at New York City Opera, raising more than \$300,000 to support HSS's medical education programs.

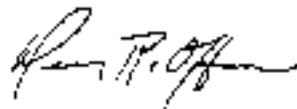
Looking to the Future

In November, more than 60 trustees, medical leaders, and senior managers of the Hospital attended a daylong retreat to explore critical issues and opportunities facing HSS over the next five years. The meeting provided an opportunity to affirm the Hospital's vision for the future – to lead the world as the most innovative source of medical care, the premier research institution, and the most trusted educator in the fields of orthopedics, rheumatology, and related disciplines, and to adopt a new mission statement reinforcing our goals “to provide the highest quality patient care, improve mobility, and enhance the quality of life for all.”

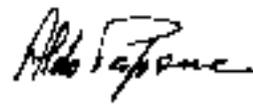
As a financially sound organization, the Hospital is able to continue to invest in its mission and plan a future that indeed promises ongoing growth and greater service to the patients who need it. We are grateful for the guidance of an exceptionally talented and committed Board of Trustees to help us meet the opportunities ahead. We were pleased to welcome new trustees David H. Koch, Chairman and CEO of the Koch Chemical Technology Group, and Dr. Richard A. Brand, a leading orthopedic surgeon long-affiliated with the University of Iowa, a past president of the Orthopedic Research Society, and currently Editor-in-Chief of the scholarly journal *Clinical Orthopedics and Related Research*.

For the past two decades, HSS has been guided by the astute and farsighted stewardship of John Reynolds. During this time, the quality of care, fiscal health, and scope of treatment for musculoskeletal disease at the Hospital have reached the highest level in its history. In March 2005, Mr. Reynolds announced his decision to retire. He will remain with HSS to oversee a carefully planned succession and until a new president and CEO is named and fully integrated into the position. The generous time frame provided by Mr. Reynolds to allow the Hospital to find a successor is consistent with his devotion to the mission of our institution.

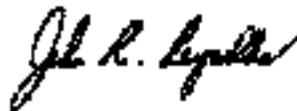
In this issue of *Horizon*, we highlight the range of musculoskeletal problems that confront us at different stages of life. With the ongoing support of outstanding scientists, physicians, professional staff, and the dedicated volunteers and donors who contribute so much to our efforts, we will continue to provide the very highest quality medical and surgical care to all who come through our doors and enable our patients to have the benefit of a lifetime of mobility.



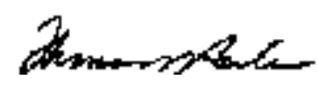
Dean R. O'Hare
Co-Chair



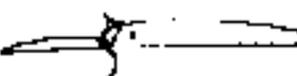
Aldo Papone
Co-Chair



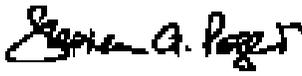
John R. Reynolds
President and CEO



Thomas P. Sculco, MD
Surgeon-in-Chief and
Medical Director



Francesco Ramirez, PhD
Chief Scientific Officer



Stephen A. Paget, MD
Physician-in-Chief

2004 Report

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Finance Report

In 2004, Hospital for Special Surgery (HSS) and its affiliated companies experienced tremendous volume and revenue growth. Total revenue of HSS increased by approximately \$48.6 million (15.8 percent) over 2003 and total operating income of HSS was \$10.5 million (compared to \$4.5 million in 2003). In addition, surgical procedures increased by 1,267 (8.5 percent). We credit these results to the continuing growth in demand for the specialized services of HSS, HSS's reputation for excellence in treating patients with musculoskeletal disorders, and the ongoing recruitment and retention of talented physicians, nurses, technicians, and other staff. In addition, our many successful services, including the International Center, the Physician Referral Service, and the Offsite Physician Office Program, continue to fuel growth and expand our patient base.

This volume and revenue growth, along with fundraising (amounts fundraised during 2004 totaled nearly \$27.0 million and consisted of unrestricted contributions, endowments, and various restricted contributions) have provided HSS with the resources to respond to regulatory and inflationary challenges in the industry, implement and utilize the most updated technological advances, offer superior graduate medical education programs, perform pacesetter research, invest in new programs and initiatives, and make the necessary investments to accommodate the increasing demand for HSS's services – all while providing the highest quality patient care.

Our Business Development Program, established during 2001 to develop new business ventures and secure new sources of future revenue streams by capitalizing on the Hospital's proven areas of clinical and research expertise, continues to expand its activities. During 2004, 46 contracts were signed with outside companies.

HSS has expended and committed significant resources to the expansion of its Research Division. During 2004, \$26.0 million was spent on a wide variety of research initiatives and programs. The ongoing recruitment and retention of gifted scientists and clinicians will enable the Hospital to continue to expand and broaden the scope of its research activities and maintain its leadership position at the forefront of orthopedic and rheumatologic research.

It is anticipated that the demand for the specialized services of HSS will continue to grow at a rapid pace. The current utilization rates of our operating rooms, inpatient nursing units, and other patient care services are at or close to maximum capacity. In order to continue to accommodate the demand for HSS's services and maintain HSS's standing as a preeminent musculoskeletal institution, we are embarking on a major facility expansion and renovation program. Construction will commence during 2005, will continue through 2008, and will entail the construction of additional operating rooms, inpatient nursing units, physician offices, and administrative and support space. The total cost of the project is estimated at \$201 million (of which \$136 million will be borrowed and \$65 million will be funded by a capital fundraising campaign).

HSS is also moving forward with the implementation of advanced information technology systems. Our mission encompasses a forward thinking vision and a culture of high expectations, and it is because of this that we are utilizing the power and potential of technology to improve our already high standards of patient care. Up to \$24 million will be invested to purchase and implement a clinical information system and a digital radiology system. These systems will provide HSS clinical staff with fast, reliable, and convenient access to real-time information on their patients by replacing documentation that is traditionally manual. Efficiency, workflow, patient safety, patient outcomes, and research efforts will be greatly enhanced. The implementation of these systems will begin in 2005 and take place over a two- to three-year period.

Health care delivery continues to be faced with many challenges, such as regulatory changes, labor shortages, expense inflation, and costs associated with the latest technological advancements. HSS will continue to be proactive in prudently investing its resources in the programs necessary to ensure future economic stability and growth, while adhering to our mission of providing high quality patient care, education, and research in the fields of orthopedics and rheumatology.



Stacey L. Malakoff
Executive Vice President and
Chief Financial Officer

Financial Information⁽¹⁾⁽²⁾

Hospital for Special Surgery and Affiliated Companies

Statement of Income⁽³⁾

<i>(In Thousands) Year Ended</i>	2004	2003⁽⁴⁾
Hospital for Special Surgery		
Total Revenue ⁽⁵⁾	\$357,069	\$308,478
Total Expenses	346,598	304,019
Operating Income from Hospital for Special Surgery	\$ 10,471	\$ 4,459
Affiliated Companies		
Total Revenue ⁽⁶⁾	\$ 37,068	\$ 32,108
Total Expenses	35,749	34,239
Operating Income/(Loss) from Affiliated Companies	\$ 1,319	\$ (2,131)
Operating Income	\$ 11,790	\$ 2,328

Statement of Financial Position

<i>(In Thousands) December 31</i>	2004	2003
Assets		
Current Assets (Excluding Investments)	\$ 96,248	\$ 95,338
Investments ⁽⁷⁾		
Current	109,372	83,152
Long Term	48,334	40,021
Assets Limited as to Use	44,261	29,612
Property, Plant and Equipment – Net	236,996	237,301
Other Non-Current Assets	30,678	24,521
Total Assets	\$565,889	\$509,945
Liabilities and Net Assets		
Current Liabilities	\$100,388	\$ 88,502
Long Term Debt	148,293	135,534
Other Non-Current Liabilities	14,699	13,140
Total Liabilities	263,380	237,176
Net Assets	302,509	272,769
Total Liabilities and Net Assets	\$565,889	\$509,945

⁽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 of both Hospital for Special Surgery and affiliates are available upon request from the HSS Development Department at 212.606.1196.

⁽³⁾ Excludes \$21.5 and \$20.1 million of restricted philanthropic contributions in 2004 and 2003, respectively.

⁽⁴⁾ For purpose of comparison, certain reclassifications have been made to the 2003 column to conform with the 2004 presentation. Such reclassifications had no effect on changes in net assets.

⁽⁵⁾ Includes \$0.9 million of revenues from affiliated companies that are eliminated in consolidation in 2004 and 2003, respectively.

⁽⁶⁾ Includes \$23.8 million and \$20.2 million of revenues from Hospital for Special Surgery that are eliminated in consolidation in 2004 and 2003, respectively.

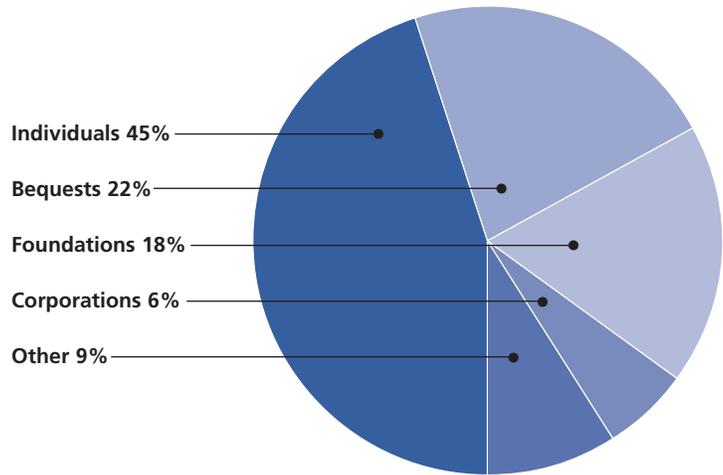
⁽⁷⁾ Hospital for Special Surgery is the beneficiary in perpetuity of income from an outside trust. The fair value of investments in the trust are not included above and were \$35.0 million and \$32.9 million at December 31, 2004 and 2003, respectively.

Philanthropic Highlights

Hospital for Special Surgery is deeply grateful for the extraordinary generosity of the many individuals, foundations, and corporations that made 2004 such an exceptional year. Over \$26.8 million was raised in 2004, an increase of more than \$3.7 million from the previous year, thanks to the tremendous commitment of new and longtime donors. Their support makes it possible for HSS to continue and expand clinical services, sustain and enhance medical education, and undertake groundbreaking investigations in musculoskeletal research.

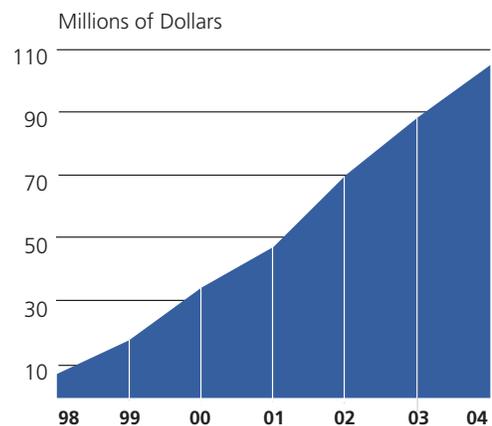
Total Support – \$26.8 million

In 2004, gifts from individual donors and their estates represented the Hospital's greatest source of support, accounting for 67 percent of the \$26.8 million total raised. Their generosity was critical to the delivery of the highest quality care for our patients. Additionally, we exceeded our goal for raising seed funding for the Hospital expansion. Breaking all records, we received seven gifts of \$1 million or more from private sources in 2004, the greatest number ever in any one year in HSS history. The generosity of foundations continued to be key to our activities, providing 18 percent of overall support. Corporations, whose gifts accounted for 6 percent of the total, are the main sponsors of our annual Gala, which raised more than \$1.9 million this past year, an unprecedented achievement. Other support for HSS, in the form of federal and New York City grants benefiting research facilities, totaled more than \$2.4 million.



The Campaign for Research

The outpouring of philanthropic support by the Hospital's donors for musculoskeletal research is unprecedented in the Hospital's history. With \$16.5 million raised for research in 2004, *Discovery to Recovery*, the Campaign for Research, has exceeded \$104 million towards its \$110 million goal. Contributions toward the Hospital's scientific enterprise have surged since the inception of the Campaign in 1998. They have dramatically increased each year. Generous gifts from individuals, foundations, and corporations, along with crucial public support at the federal, state, and local levels, has enabled us to modernize and expand our research laboratories, recruit world-class investigators to augment our excellent scientific faculty, expand research programs, and build an endowment that will offer a lasting source of funding to sustain pioneering research today and in the future.



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(April 1, 2005)

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Douglas S.T. Green, MD

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Leon Root, MD
Thomas P. Sculco, MD
Riley J. Williams, MD
Scott W. Wolfe, MD

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Surgeons-in-Chief Emeriti

Russell F. Warren, MD
Andrew J. Weiland, MD
Philip D. Wilson, Jr., MD

Executive Assistant to Surgeon-in-Chief

Mathias P. Bostrom, MD

Department of Orthopedic Surgery

Clinical Director

Scott W. Wolfe, MD

Academic Director

Mathias P. Bostrom, MD

Orthopedic Research Director

Jo A. Hannafin, MD, PhD

Orthopedic Network Director

Charles N. Cornell, MD

Orthopedic Surgeons Emeriti

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Allan E. Inglis, MD
David B. Levine, MD
Peter J. Marchisello, MD
Richard R. McCormack, Jr., MD
Thomas D. Rizzo, MD

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John H. Healey, MD
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Joseph M. Lane, MD
Richard S. Laskin, MD
Paul M. Pellicci, MD
Chitranjan S. Ranawat, MD
Leon Root, MD
Eduardo A. Salvati, MD
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Russell F. Warren, MD
(Surgeon-in-Chief Emeritus)
Andrew J. Weiland, MD
(Surgeon-in-Chief Emeritus)
Thomas L. Wickiewicz, MD
Philip D. Wilson, Jr., MD
(Surgeon-in-Chief Emeritus)
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Scott W. Wolfe, MD

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David W. Altchek, MD
Stanley E. Asnis, MD
Edward A. Athanasian, MD
Oheneba Boachie-Adjei, MD
Walther H.O. Bohne, MD
Mathias P. Bostrom, MD
Frank P. Cammisia, Jr., MD
Frank A. Cordasco, MD
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Mark P. Figgie, MD
Steven B. Haas, MD
Jo A. Hannafin, MD, PhD
Robert N. Hotchkiss, MD
John P. Lyden, MD
Stephen J. O'Brien, MD
Patrick F. O'Leary, MD
Martin J. O'Malley, MD
Douglas E. Padgett, MD
Bernard A. Rawlins, MD
Scott A. Rodeo, MD
Harvinder S. Sandhu, MD
Geoffrey H. Westrich, MD
Roger F. Widmann, MD

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Michael M. Alexiades, MD
Scott W. Alpert, MD
David E. Asprinio, MD
Robert L. Buly, MD
Michelle G. Carlson, MD
Struan H. Coleman, MD
Aaron Daluiski, MD
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Stephen Fealy, MD
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Charles B. Goodwin, MD
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Bryan T. Kelly, MD
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F. Javier LaPlaza, MD
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Andrew A. Sama, MD
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Mark F. Sherman, MD
Beth E. Shubin Stein, MD
Edwin P. Su, MD
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Riley J. Williams, MD
Steven B. Zelicof, MD, PhD

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Jeffrey P. Gold, MD
(Cardiothoracic Surgery)
K. Craig Kent, MD
(Vascular Surgery)

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Gary A. Fantini, MD
(Vascular Surgery)
Francis W. Gamache, Jr., MD
(Neurosurgery)
Lloyd B. Gayle, MD
(Plastic Surgery)
Jam Ghajar, MD, PhD
(Neurosurgery)
William I. Kuhel, MD
(Otorhinolaryngology)
Michael P. LaQuaglia, MD
(Pediatric Surgery)
Michael H. Lavyne, MD
(Neurosurgery)
Robert B. Snow, MD
(Neurosurgery)
Nitsana A. Spigland, MD
(Pediatric Surgery)

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(General Surgery)
Peter L. Faries, MD
(Vascular Surgery)
Lloyd A. Hoffman, MD
(Plastic Surgery)
Kenneth O. Rothaus, MD
(Plastic Surgery)
Mark M. Souweidane, MD
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(Adult Reconstruction)
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(Spine/Scoliosis)
Christopher Cannova, MD
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Timothy Charlton, MD
(Foot and Ankle)
Austin Fragomen, MD
(Limb Lengthening)
Peter Frelinghuysen, MD
(Spine/Scoliosis)
Andrew Grose, MD
(Adult Reconstruction)

Sheryl Handler, MD
(Pediatrics)

D. Ross Henshaw, MD
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Lana Kang, MD
(Hand)

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(Adult Reconstruction)

Aimee Klapach, MD
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Elias Papadopoulos, MD
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(Hand)

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Milan Sen, MD
(Trauma)

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Michael W. Madsen, MD

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Joshua Dines, MD

Benjamin Domb, MD

Benjamin Huffard, MD

Christina Kuo, MD

Holly Leitzes, MD

Anil Ranawat, MD

PGY3

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Christopher Good, MD

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Luke Oh, MD

Dana Piasecki, MD

Samuel Robinson, MD

Wakenda Tyler, MD

Tony Wanich, MD

PGY2

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Thomas Lawhorne, MD

Shane Nho, MD

William Robertson, MD

PGY1

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Frank Henn, MD

Carolyn Hettrich, MD

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Adrian Thomas, MD

James Voos, MD

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Michael Gardner, MD

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Darrick Lo, PhD

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(Metabolic Bone)

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Moris Jak Danon, MD

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Dexter Y. Sun, MD, PhD
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Alfred Gilbert, MD
(Genetics)
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Assistant Attending Psychiatrist

Ruth Cohen, MD

Consulting Psychiatrist

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Michael Friedman, MD
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Sandra Starcic, DO
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Department of Laboratory Medicine

Director and Chief Pathologist

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Attending Pathologists

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Peter G. Bullough, MD

Associate Attending Pathologist

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Assistant Attending Pathologist

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Chief of Blood Bank, Attending Hematologist and Immuno-hematologist

Klaus Mayer, MD

Associate Attending Hematologist and Immuno-hematologist

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Consulting Neurologist in Pathology

Moris Jak Danon, MD

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Associate Attending Physiatrist

Gregory E. Lutz, MD

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Svetlana Ilizarov, MD
Julie T. Lin, MD
Christopher Lutz, MD
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Alex C. Simotas, MD
Jennifer L. Solomon, MD
Vijay B. Vad, MD

Consulting Staff

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Rock G. Positano, DPM
(Podiatric Medicine)

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The Gift of a Lifetime

Over the past decade, bequests have raised over \$20 million for the Hospital and have made a significant contribution to the overall growth and expansion of the institution. Last year, HSS received an unprecedented \$9 million bequest from long-time patient and enduring benefactor Franchellie “Frankie” M. Cadwell to benefit musculoskeletal research related to her illness.

The late Frankie Cadwell, a prominent New York City advertising executive, endured the pain and disability of rheumatoid arthritis until her passing in 2003. Her tremendous loyalty and commitment to HSS was realized when the Hospital received an exceptional bequest from her estate – the largest in the history of the institution. Ensuring Ms. Cadwell’s wishes to improve the lives of those stricken with rheumatic disease, HSS has established three endowed faculty positions in her name and those of her closest friends, and a Center for the Diagnosis and Treatment of Autoimmune Ophthalmic Illnesses. In addition, HSS has dedicated The Franchellie M. Cadwell Laboratories on the fourth floor of the Caspary Research Building in her honor.

Advancing Science

Focusing on research into the development of rheumatic disorders and autoimmune diseases of the eye is clinician-scientist Sergio Schwartzman, MD, who has been awarded The Franchellie M. Cadwell Chair. As Ms. Cadwell’s former rheumatologist, Dr. Schwartzman played an important role in her ability to maintain an active lifestyle despite her crippling disease. “It is a singular honor to be recognized by HSS with this chair,” he commented.



The research of Sergio Schwartzman, MD, (left), Jane Salmon, MD, and Ioannis Tassioulas, MD, will benefit from Franchellie Cadwell’s generous gift.

Dr. Schwartzman will direct the new Center for the Diagnosis and Treatment of Autoimmune Ophthalmic Illnesses.

Senior Scientist Jane Salmon, MD, has been appointed to hold The Collette Kean Research Chair, which will allow her to continue to develop and test novel concepts to advance our understanding of rheumatic and inflammatory diseases. Collette Kean was a close, personal friend to Ms. Cadwell and has been a steadfast supporter of HSS and the Hospital’s larger medical center for years. “It is a privilege to have my name associated with a woman who has dedicated so much of her time and energy to helping to develop programs for both patients and the institutions that care for them,” Dr. Salmon remarked.

Honoring Physician-in-Chief Emeritus Charles Christian, MD, is the Charles Christian Research Fellowship, which was presented to Ioannis Tassioulas, MD, Assistant Attending Physician at HSS and Assistant Professor of Medicine at Weill Medical College of Cornell University. For many years, Dr. Christian served as a physician to both Ms. Cadwell and her mother. As part of HSS’s Arthritis and Tissue Degeneration Program, the Fellowship will support Dr. Tassioulas’ research into the regulation of cytokines in autoimmune diseases such as rheumatoid arthritis and lupus.

A portion of Ms. Cadwell’s generous gift will be used to establish the Margaret R. Cadwell Endowment for Musculoskeletal Research, in honor of her mother, to support scientific collaborations at HSS with Weill Cornell Medical College.

A planned gift, like Franchellie Cadwell’s bequest, serves as a perpetual source of support for our scientists and physicians as they work to advance our understanding of orthopedic and rheumatic diseases. If you are interested in learning more about how to make a planned gift to HSS, please contact Sandra Kessler Hamburg, Director of Planned Giving, at 212.606.1196.

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