Spine Fellowship Programs at Hospital for Special Surgery

THE SPINE FELLOWSHIP
THE JOHN R. COBB FELLOWSHIP
t is our pleasure to introduce you to our Spine Fellowships: The Spine Fellowship and The John R. Cobb Fellowship. Since our founding, Hospital for Special Surgery (HSS) has been committed to advancing the science and profession of orthopaedics and rheumatology through medical education and clinical research and training. Many of today's standard orthopedic surgeries were developed at HSS. Within the specialty of spine surgery, HSS surgeons were pioneers in the creation of minimally invasive techniques and today continue to strive to discover new and improved methods of care. Subsequently, we have continually trained and educated innovative and outstanding leaders in musculoskeletal clinical care, research, and teaching. The Hospital for Special Surgery Fellowship Programs are well-respected both nationally and internationally, and are widely known for their comprehensiveness in covering both adult and pediatric reconstruction and deformity.

The Spine Fellowship
The Spine Fellowship, one of the largest in the U.S., is an ACGME-accredited program offering Fellows the opportunity to gain a broad range of experience working under the 16 attending spine surgeons in our Spine and Scoliosis Services. Each surgeon is specialty-trained and collectively they offer a wide range of subspecialty expertise for the Services’ more than 2,000 cases per year. As a result, the yearly curriculum of The Spine Fellowship offers comprehensive exposure to adult and pediatric surgical treatments and procedures including complicated deformities and injuries to the spine, degenerative and arthritic conditions, infections, tumors, metabolic diseases, trauma, and fractures. This Program is geared toward the orthopaedic surgeon who is interested in building a foundation for treating the whole range of surgical spine conditions, including deformity, through the use of the most advanced methods and approaches.

The John R. Cobb Fellowship
The John R. Cobb Fellowship is for the candidate whose primary interest is in spine deformity training during his or her first or second Fellowship year. This program offers an individual the opportunity to pursue year-long training in spinal deformity and is geared to the orthopaedic surgeon who is interested in a career in adult and pediatric scoliosis and spinal deformity surgery. There is ample exposure to adult spinal disorders to the cervical, thoracic, and lumbosacral spine.

Our Graduates
Upon completion of either The HSS Spine Fellowship or The John R. Cobb Fellowship, graduates are amply prepared to build surgical practices, focus more deeply on research, and teach at top academic medical centers and hospitals around the country and the world. As a result, a large group of our Fellowship graduates, who currently work in over a dozen countries, are actively engaged in our alumni network, which is a valuable resource for our Fellows as they continue their orthopaedic careers.

We hope that as you plan your future, that you consider closely our very special community, our history of standard-setting care, and all the resources that our Programs have to offer.

Sincerely,

Andrew A. Sama, MD
Fellowship Director, Spinal Surgical Service
Associate Attending Orthopedic Surgeon at Hospital for Special Surgery

Bernard A. Rawlins, MD
Fellowship Director, Scoliosis Service
Attending Orthopedic Surgeon at Hospital for Special Surgery
About Hospital for Special Surgery

Hospital for Special Surgery (HSS) is the world’s leading institution and center of excellence for musculoskeletal medicine, including orthopaediatric surgery, rheumatology, and rehabilitation. This academic medical center on the Upper East Side of New York City is affiliated with NewYork-Presbyterian Healthcare System and Weill Cornell Medical College. Since the Hospital’s founding in 1863 by Dr. James A. Knight, Hospital for Special Surgery has set the standard for orthopaedic patient care, which has always gone hand in hand with world-class education and research.

Spine Service
With over 2,000 cases per year, the Spine Service focuses on a wide range of treatments, including disc replacement and image guidance techniques, micro-discectomies, laminectomies, laminotomies, anterior cervical discectomies and fusions, dynamic stabilizations, as well as more technically challenging major reconstructive procedures requiring standard osteotomies, pedicle subtraction osteotomies, endoscopic fusions, motion preserving techniques, and posterior vertebral column resections. Fellows are exposed to the highest standard of patient care as well as new areas of diagnosis and treatment including minimally invasive techniques such as anterolateral approaches (transpsoas approach) and extreme lateral interbody fusion (XLIF), minimally invasive lumbar decompression and fusion, disc replacement, microsurgical lumbar laminoplasty, retroperitoneal approaches, as well as groundbreaking treatment of spine tumors and biologic interventions.

Scoliosis Service
The Hospital for Special Surgery Scoliosis Service, a recognized world and national leader in the treatment of spine deformity, as well as education, training, and research, continues to advance techniques for the treatment of complex deformities. The Service surgeons are all active members of the Scoliosis Research Society and are nationally and internationally recognized for their work in clinical and basic science research activities. Over 350 cases per year, the Service undertakes major reconstructive procedures requiring standard osteotomies, pedicle subtraction osteotomies, VEPTR techniques, and posterior vertebral column resection. The Service also uses a variety of posterior and anterior segmental instrumentation for deformity reconstruction. Minimally invasive procedures are also performed. Our surgeons are currently investigating fusing and instrumenting the front of the spine through minimal incisions, long fusions to the lower lumbar spine and sacrum for adult deformity, and dual rod instrumentation with limited fusion for treatment of progressively early onset scoliosis.

Spine Care Institute
The Spine Care Institute at Hospital for Special Surgery brings together a highly renowned team of spine care specialists covering a range of professional disciplines including orthopaedic surgeons, neurologists, physiatrists, pain management specialists, interventional radiologists, anesthesiologists, physical therapists, and integrative/complimentary treatment specialists. Together, they provide care that meets the special needs of all of our spine and scoliosis patients, providing innovative solutions to a vast array of pathologies. Through research, education, and clinical excellence, the Spine Care Institute delivers the highest standard of comprehensive patient care and continues to open new frontiers in the diagnosis and treatment of operative and non-operative spinal disorders. Physicians have pursued subspecialty training in pediatric and adult spine disorders, both acute and chronic. Areas of particular focus include: degenerative conditions, (e.g., disc herniation, stenosis), deformities (e.g., scoliosis, spondylolisthesis, and kyphosis), infections, tumors, metabolic diseases (e.g., osteoporosis, osteopenia), and fractures.

Integrated Spine Research Program
The Integrated Spine Research Program (ISRP) is dedicated to exploring translational and basic questions of spine care. The ISRP is critical in the development of new treatments and is uniquely designed as a collaborative program among surgeons, physicians, and basic and clinical scientists. The ISRP plays a role in providing Fellows with an opportunity to build upon their existing research skills through extensive exposure to research methodology, study design, and critical data review. Yearly, the Program publishes highly regarded, peer-reviewed articles and abstracts, which are accepted to international and domestic spine conferences.

Patient-Derived Outcomes Assessment — Scientists are evaluating clinical outcomes of lateral access surgery for degenerative disc disease, scoliosis, and other conditions, to understand their benefits in terms of speed of a return to function and quality of life.

Pre-Clinical and Clinical Studies — Pre-clinical and clinical studies are underway to find ways to expand use of minimally invasive surgical techniques, understand both quantitatively and qualitatively the biologic response to bone graft substitutes used in spinal fusion, develop methods to reduce complications in anterior lumbar spine procedures, and preserve motion through motion-sparing devices and techniques, such as total disc replacements and minimally invasive surgical procedures.

Basic Research — Investigators are seeking ways to rejuvenate intervertebral discs through injection of proteins and factors. Scientists are also studying the fluid flow of intervertebral discs to help them to understand why discs dehydrate.

Registries — Several Class 1 Clinical Trials are underway to assess new technologies for spine surgery and artificial disc replacement. HSS is participating in an NIH multicenter SPORT study on stenosis, as well as numerous other multicenter post-market and single-center clinical investigations. The Scoliosis Service is participating in a multicenter study group of clinical projects in adult and pediatric spine deformity.
During this year-long program, six Fellows develop in-depth experience in the surgical and non-surgical management of complex spinal disorders of the cervical, thoracic and lumbar spine. This includes spinal deformity, trauma, tumors and degenerative diseases in adults and children. The primary goal of The Spine Fellowship, which is accredited by the Accreditation Council for Graduate Medical Education (ACGME), is to expose and train Fellows in a wide range of treatments from the most complex deformity, trauma and disease, as well as common degenerative conditions and sports-related injuries. Each Fellow works closely with our 16 Attending surgeons as well as Residents, from both the Spine and Scoliosis Services, assisting in the diagnosis, treatment, and management of a multitude of conditions affecting the spine including:

- Cervical Degenerative Disease
- Lumbar Degenerative Disease
- Complex Cervical Deformity
- Complex Thoracic and Lumbar Deformity
- Neurologic Deficits
- Trauma and Tumor
- Sports-Related Spine Injuries

Although this Fellowship runs for one year, there is an option, in select circumstances, for a Fellow to pursue a second Fellowship year with the Integrated Spine Research Program.

Rotations
Six, two-month rotations make up the Fellowship year and provide Fellows with a core competency in the major aspects of spine surgery and treatments of spine degeneration, deformity, trauma, and tumor. These rotations are designed to broaden a Fellow’s base of knowledge across all elements of spine. During each rotation, Fellows see a broad variety of spine conditions in a one-on-one mentorship environment where a Fellow is exposed to a range of methods, techniques, approaches to and management of multiple issues of the spine. One of the Service’s affiliated vascular surgeons provides in-depth training to Fellows in procedures such as anterior approaches to the spine, including the mini-laparotomy approach for placement of total disc prostheses.
Day-to-Day
Time is divided equally between office and operating room with additional time allocated for research. During the rotation in tumor, Fellows will work with surgeons and neurosurgeons at Memorial Sloan-Kettering’s Orthopaedic, Neurosurgery, and Oncologic Services. The trauma rotation will involve work at Westchester Medical Center in the Orthopaedic and Neurosurgery departments. On a weekly rotation, Fellows will further develop their skills with greater autonomy at the Spine Clinic at the VA Medical Center in the Bronx, where they will treat cases and perform spine surgeries. In addition, Fellows will see patients in the HSS Spine Clinic.

Skills Development
During each rotation the Fellow will: analyze that area’s literature and synthesize learning into everyday practice, conceptualize difficult problems, assess care options, and learn to treat a wide variety of common and rare spine conditions with independence. Fellows will develop and enhance their skills of evaluating spine disorders, developing a rational approach for care, and organizing and executing treatments for a diverse array of clinical problems. He or she will also cultivate skills of patient evaluation and management.

Weekly and Monthly Academic Conferences
Weekly academic conferences are part of the CME-accredited program where unique and complex cases are presented and discussed and tutorials occur between Fellows and some of the Hospital’s most experienced surgeons. Members of the faculty attend these conferences, and Fellows are required to participate and often lead discussions. On a monthly basis, the conference focuses on aspects of radiology and spine. Quarterly, a multidisciplinary conference is held with the physiatry, neurology, interventional radiology, physical therapy, and anesthesiology specialists that make up the Spine Care Institute. Fellows also participate in monthly journal clubs. Yearly, a Distinguished Lectureship in Spine Surgery is held featuring an international leader in spine.

Academic Career Training
In addition to clinical care and research, Fellows develop strong teaching and organizational skills necessary to participate in an academic career. To this end, Fellows work closely with Residents on the Service to coordinate patient care. The Fellows—along with an Attending Surgeon—conduct monthly sessions in psychomotor skills to instruct Residents and physician assistants in operative techniques. Fellows also prepare literature for these sessions. Techniques for running a practice are taught by observing Attendings during office hours and through a series of practice management sessions.

Research
In addition to a robust clinical experience, Fellows build upon their existing research skills with extensive exposure to research methodology, study design, and critical data review. Each Fellow in the Program is required to complete at least one research project during the academic year, though some complete more. Fellows meet regularly with the assigned research mentor to design their research project and review milestones during the year. Fellows present their progress to their Service, and also attend a series of research lectures organized by the HSS Academic Training Department, which instructs Residents and Fellows on research designs and techniques. Fellows are also encouraged to attend and present research at national and international academic meetings.
The John R. Cobb Fellowship

The John R. Cobb Fellowship provides one Fellow with a year of comprehensive education and training, both operative and non-operative, in the management and treatment of all spine deformities of the cervical, thoracic, and lumbosacral spine in pediatric and adult patients. Although non-accredited, this unique Fellowship has a strong emphasis on spine deformity and some of the complex procedures required in this challenging specialty. In addition, there is significant exposure to procedures in low back and cervical spine, allowing the Fellow to be completely comfortable in a routine degenerative and cervical spine practice. The Fellow works closely with Residents and the six Attending surgeons on the Scoliosis Service, assisting in the diagnosis and treatment of both operative and non-operative cases, in a multitude of conditions related to spine including:

- Adult and Pediatric Scoliosis
- Adult and Pediatric Kyphosis
- Adult and Pediatric Salvage Reconstruction
- Cervical and Lumbar Disc Herniations
- Spondylritis
- Spondylosis and Spondylolisthesis
- Spinal Stenosis
- Sports-Related Spine Injuries
- Spine Trauma and Tumor

Rotations
The Fellowship year provides exposure to both pediatric and adult practices, which provide the Fellow with a core competency in the major aspects of spinal deformity and disorders. These rotations are designed to deepen the Fellow’s knowledge and expertise in understanding and developing treatment options. During each rotation, the Fellow will gain in-depth knowledge and experience in a one-on-one mentorship environment where the Fellow is exposed to a range of methods, techniques, approaches, and management styles.

Day-to-Day
During each rotation the Fellow will: analyze that area’s literature and synthesize learning into everyday practice, conceptualize difficult problems, assess care options, and learn to treat a range of spine deformities in children and adults. The Fellow will learn to evaluate deformities, develop a rational approach for care, and organize and execute treatments. He or she will cultivate skills of patient evaluation and management. Time is spent in surgeons’ offices seeing patients, the operating room, and the HSS Scoliosis Clinic. Time is also allocated for research.
The Fellow with a strong interest in spine deformity will have ample exposure to a range of operative and non-operative approaches, including observational treatment, casting (a new method of treatment for early onset scoliosis), brace management for idiopathic scoliosis, and a full array of surgical treatments. During the weekly HSS Scoliosis Clinic, the Fellow will have an opportunity to learn the management of a range of pediatric and adult conditions, where a variety of spinal deformity patients are seen.

**Overseas Experience**

The Andrew Swanson Alumni Traveling Fellowship/Scholarship was established for the HSS Resident or John R. Cobb Fellow to have the opportunity to travel overseas to participate in F.O.C.O.S (Foundation of Orthopedics and Complex Spine). Under the auspices of F.O.C.O.S., surgical and non-surgical care of disabling musculoskeletal problems, including complex spine deformity and pediatric and adult patients, is provided in underserved communities in Ghana and throughout West Africa.

**Weekly and Monthly Academic Conferences**

Weekly academic conferences are part of the program where unique and complex cases are presented and discussed and tutorials occur between the Fellow and some of the Hospital’s most experienced surgeons. Members of the faculty attend these conferences, and the Fellow is required to participate and often lead discussions. On a monthly basis, the conference focuses on aspects of radiology and spine. Quarterly, a multi-disciplinary conference is held with the physiatry, neurology, interventional radiology, physical therapy, and anesthesiology specialists that make up the Spine Care Institute. Yearly, a Distinguished Lectureship in Spine Deformity Surgery is held featuring an international leader in spine deformity. The Fellow will also participate in journal clubs, didactic teaching sessions with the Service chief, surgical decision making, pre- and post-operative case management, Grand Rounds lectures, and monthly psychomotor skills development.

**Academic Career Training**

In addition to clinical care and research, the Fellow develops strong teaching and organizational skills necessary to participate in an academic career. To this end, the Fellow works closely with Residents on the Service to coordinate patient care. The Fellow—along with an Attending Surgeon—conducts monthly sessions in psychomotor skills to instruct Residents and physician assistants in operative techniques. He or she also prepares literature for these sessions. Techniques for running a practice are taught by observing Attendings during office hours and through a series of practice management sessions.

**Research**

In addition to a robust clinical experience, the Fellow builds upon his or her existing research skills with extensive exposure to research methodology, study design, and critical data review. The Fellow is required to complete at least one research project during the academic year. The Fellow will meet regularly with the assigned research mentor to design his or her research project and review milestones during the year. Research lectures organized by the HSS Academic Training Department instruct Residents and Fellows on research designs and techniques.

HSS scientists and clinicians are involved in numerous projects, including genetic mapping studies for adolescent idiopathic scoliosis; a multicenter retrospective evaluation of complications following spinal surgery and a risk scoring system for adult spinal deformity; the creation of fusion models with biologics and tissue regeneration to deepen understanding of spine fusion in patients; and the upgrading of the Scoliosis Registry and database. Surgical techniques under investigation include fusing the front of the spine through minimal incisions; long fusions to the lower lumbar spine and the sacrum for adult deformity; and dual rod instrumentation with limited fusion for treatment of progressive early onset scoliosis. The Service is also participating in an NIH-sponsored prospective brace study and a prospective study of operative versus non-operative adult spine deformity.
Facilities

The Hospital is currently undergoing an exciting period of growth and physical expansion. In order to enhance the Spine Fellows’ and the John R. Cobb Fellow’s clinical, educational, and research experience, they will have access to the Hospital’s state-of-the-art facilities, including the following:

- **Kim Barrett Memorial Library**: Open 24/7, the Kim Barrett Memorial Library is a technology-driven medical library with emphasis on musculoskeletal medicine. The library’s collection includes over 425 active electronic journals, 250 electronic textbooks, and 2,000 monographs. Through cooperative agreements with Memorial Sloan-Kettering, Rockefeller University, and Weill Cornell Medical College, our Fellows have full access to these additional world-class biomedical research libraries, all located within a two-block radius of HSS.

- **Bioskills Education Laboratory (BSEL)**: Established in 2000, the BSEL simulates surgical procedures with equipment that is, in many instances, identical to that in HSS operating rooms, allowing Fellows to become more familiar with the myriad devices currently used in surgery. The procedures in the lab can be performed on cadaver specimens or sawbones — plastic models of bones and joints.

- **Biomechanics Laboratory**: The mission of the Department of Biomechanics at HSS is to apply the principles of engineering and material science to solve orthopaedic problems. The Laboratory conducts basic and applied research that is translated into the development of orthopaedic devices and instrumentation aimed at improved patient care. The Biomechanics Laboratory houses a robotics system that allows sophisticated testing of joint mechanics.

- **Implant Retrieval Archives**: HSS was one of the first in the United States to begin archiving actual retrieved implants and one of only a few institutions in the world with a web-based capability. As a part of the Department of Biomechanics, these Archives house nearly 20,000 retrieval implants, which provide critical data that is helping to drive the development and refinement of implant materials and design.

- **Core Research Facilities**: The HSS Core Research Facilities include Epidemiology and Biostatistics, Flow Cytometry, Musculoskeletal Repair and Regeneration, Analytical Microscopy, Imaging, and Mechanical and Material Assessment. In addition, HSS maintains a close relationship with the Cornell University College of Engineering, enabling the Spine Service and its Fellows to utilize its expansive, Ithaca-based Core Facilities, which include Computational Analytics and Material Testing and Evaluation.

- **Leon Root, MD Motion Analysis Laboratory**: This laboratory incorporates force sensors for gait evaluation, as well as multiple high-speed video cameras, to conduct formal video analysis of human motion. In addition, the laboratory also allows telemetered electromyographic evaluation of muscle function.

- **Computer Assisted Surgery (CAS) Center**: The CAS Center was created to investigate innovative methods of utilizing computer technology to assist in orthopaedic surgery. HSS is uniquely positioned to pioneer CAS technologies with the integration of important assets which are exclusive to the Hospital.
Upon entering The Spine Fellowship Program or The John R. Cobb Fellowship Program, participants become an integral part of the community around them. Immersed in all aspects of their area of concentration, they build strong ties to other Fellows and with each Program's faculty members. Upon completion of their Fellowship year, graduates are prepared to take their talents and expertise to top academic medical centers and hospitals around the country and the world.

Fellows also serve as important members of the HSS community at large through close collaboration with physician assistants, nurses, and other members of the care team, as well as the Hospital's research staff. Moreover, through HSS’s affiliation with NewYork-Presbyterian Healthcare System and Weill Cornell Medical College, Fellows have the opportunity to tap into this rich academic and scientific community located within a two-block radius of the Hospital.

Living in NYC
Our Programs are situated in New York City’s Upper East Side, which consists of both commercial and residential areas, many of which are populated by families with school-aged children. The New York City setting, among one of the most economically and culturally diverse metropolitan areas in the world, provides Fellows with the opportunity to work with patients from a variety of religious, ethnic, and socio-economic backgrounds, and exposes them to all the recreational and cultural activities and experiences that New York City has to offer.

Academic Training Department at HSS
The vision of HSS Academic Training is to educate innovative and outstanding physicians through graduate medical education training programs, to be academic leaders in musculoskeletal clinical care, research, and teaching. The Academic Training Department, a part of the Education Division of HSS, and its members work closely with the Fellowship Program Directors to ensure that each Program meets its mission. Academic Training also maintains a periodic evaluation process that includes all of the program stakeholders. The Department is also responsible for ensuring that each Fellowship Program is held to the universal policies and procedures established by the multidisciplinary Fellowship and Graduate Medical Education (GME) committees.

Compensation (Stipend, Housing, etc.)
Fellows are provided a stipend and benefits based on the costs of living in New York City, competitive with those of other institutions. In addition, Fellows will be put in touch with a Housing and Parking Coordinator, who is available to assist Fellows who are interested in obtaining housing.

For Applicants
We invite highly recommended applicants with demonstrated mastery of clinical and research skills that have been developed in strong residency programs in orthopaedics or neurosurgery to apply. Candidates must show leadership potential, have performed well in USMLE, possess strong social and communication skills and a capacity to thrive in a rigorous and demanding environment. To apply to either The Spine Fellowship or The John R. Cobb Fellowship, please download our online applications. For more information, please contact Academic Training by phone at 212.606.1466, by fax at 212.606.1477, or via email at academictraining@hss.edu.
Our Faculty

Spine Service

Frank P. Cammisa, Jr., MD, Chief of Spine Service
Dr. Cammisa is an Associate Attending Orthopedic Surgeon specializing in all types of spinal surgery, including minimally invasive and microsurgical procedures for treatment of degenerative, traumatic and deformity disorders. Engaged in research advancing the treatment of complex spine conditions, Dr. Cammisa is recognized as a pioneer in the use of new surgical techniques including computer-assisted image guidance, bone growth factors and total disc replacement. He is the recipient of numerous research grants and awards/honors. He has co-authored over 100 research articles published in prestigious medical journals including the New England Journal of Medicine (NEJM) and the Journal of the American Medical Association (JAMA). He is co-editor of a textbook, co-author of more than 30 chapters and has given hundreds of national and international lectures. In addition, he is well-known for his work with professional and elite athletes. He is spinal consultant for the New York Giants and the National Hockey League Players Association.

Andrew A. Sama, MD, Fellowship Director, Spine Service
Dr. Sama is an Associate Attending Orthopaedic Surgeon at HSS and Associate Professor of Clinical Surgery at Weill Cornell Medical College. He specializes in surgical management of all traumatic, degenerative, and deformity-related conditions of the cervical, thoracic, and lumbosacral spine, including minimally invasive surgery, total disc arthroplasty, and motion preservation. Active in many spine societies, academic committees, and editorial review boards, he has lectured at scientific conferences both nationally and internationally and published articles and textbook chapters. His clinical and basic science research involves the biology and biomechanics of spine fusion, fusion alternatives, complex spine surgery, minimally invasive procedures, motion preservation technologies, microsurgery, and development of orthopaedic implant devices used in spinal surgery. Most recently, he's studied biologic enhancements of spine fusion, and ways to perform minimally invasive and computer-assisted techniques for spinal surgery.

Alexander P. Hughes, MD, Education Director
Dr. Hughes is an Assistant Attending Orthopedic Surgeon at Hospital for Special Surgery specializing in the surgical management of traumatic, degenerative, and deformity-related conditions of the cervical, thoracic, and lumbosacral spine. Dr. Hughes holds medical and biomedical engineering (summa cum laude) degrees from Vanderbilt University. He also serves as the chief spinal surgery consultant at the James J. Peters Veterans Hospital. Following his residency in orthopaedic surgery at UCLA, he was a Spine Fellow at HSS before joining its faculty. A member of the Integrated Spine Research Program (ISRP) at HSS, his research interests include minimally invasive approaches to complex spinal pathologies, outcome registries, endplate diffusion, and nerve deficits and injury. Recent publications include an examination of in-hospital complications after primary anterior versus primary anterior cervical fusion, risk factors for postoperative infection following posterior lumbar instrumented arthrodesis, and a review of treatment standards at HSS for cervical spondylotic myelopathy.

Federico P. Girardi, MD, Director of Research
Dr. Girardi is an Associate Professor of Orthopaedic Surgery and the Spine Service Research Director at HSS. He specializes in motion preservation surgery, as well as complex degenerative and metabolic disorders of the spine, deformities including scoliosis and/or kyphosis, fractures, and tumors of the cervical, thoracic, and lumbar spine. He has done extensive clinical research in the areas of minimally invasive surgery, clinical outcomes of different surgical procedures, and imaging modalities of the spine. His basic science interests include aspects of bone, disc and nerve tissue regeneration as well as the investigation of alternatives to spinal fusion for the treatment of degenerative disc disease. His current research includes investigations into tissue regeneration, disc replacement and non-fusion technologies, imaging of the spine, clinical outcomes, minimally invasive surgery, and image-guided stereotactic surgery.

James C. Farmer, MD
Dr. Farmer is an Associate Attending Orthopaedic Surgeon specializing in disorders of the cervical, thoracic, and lumbosacral spine, including both acute and chronic conditions such as spinal trauma, herniated discs, spinal stenosis, spondylosis/spondylolisthesis and arthritic conditions. Surgeries performed include microsurgery, computer-assisted surgery, and lumbar and cervical disc replacement. His background in orthopaedic trauma includes service as Staff Orthopaedic Surgeon and Chief, Spine Surgery at the Keesler Medical Center, Biloxi, Mississippi, one of the largest U.S. Air Force medical centers. Inclusive of his work at HSS, Dr. Farmer maintains an academic appointment with the Uniformed Services University of Health Sciences, for which he is dedicated to providing surgical instruction to medical students seeking to care for those serving in all branches of the U.S. Military.

Charles B. Goodwin, MD
Dr. Goodwin is an Assistant Attending Orthopaedic Surgeon specializing in diagnosis and treatment of diseases of the cervical and lumbar spine and minimally invasive surgery, especially microsurgery and endoscopic fusions. He has served as Chairman of the Professional Liability and Defense Board of New York State. He has also been an orthopaedic consultant for the New York Mets, the New York Knicks, the United States Tennis Association, and the United States Golf Association U.S. Open. He is Associate Director of the Cold Spring Harbor Lab. Dr. Goodwin earned his B.A. from Harvard College, received his medical training at University of Cincinnati Medical School, St. Luke’s-Roosevelt Hospital in New York City, and Columbia-Presbyterian Medical Center. He holds a Fellowship from Toronto East General & Orthopaedic Hospital, University of Toronto.

Russel C. Huang, MD
Dr. Huang is an Assistant Attending Orthopaedic Surgeon and Director of the HSS Spine Clinic. He specializes in minimally invasive spine surgery, microsurgical techniques, XLIF, and disc replacement. Educated at Phillips Exeter Academy, Harvard College, and the Yale School of Medicine, he completed his orthopaedic surgery residency at Hospital for Special Surgery, and fellowship training in spine surgery under Dr. Henry H. Bohlman, who is considered by many to be the father of contemporary spine surgery. Dr. Huang is a winner of numerous awards including Cervical Spine Research Society J. William Fielding Award, National Institutes of Health Cancer Education Grant, Cervical Spine Research Society Traveling Fellowship Award, Orthopaedic Research and Education Foundation Research Award, and the Campbell Prize for Academic Excellence Yale School of Medicine.

Darren R. Lebl, MD
Dr. Lebl is Assistant Attending Orthopaedic Surgeon specializing in the surgical management of complex adult and pediatric conditions including degenerative and deformity-related conditions of the cervical, thoracic, and lumbosacral spine. He received college honors in Biochemistry/Molecular Biology, Economics and Chemistry, at the University of Chicago before attending medical school at Stanford on scholarship, and residency in orthopaedic surgery at Harvard where he served as academic chief resident and Editor-in-Chief of
the Orthopaedic Journal at Harvard Medical School. His fellowship training was in spine and scoliosis at HSS and internationally in China, Japan, Spain, and Germany. He has published book chapters in textbooks on evidence-based medicine and with the American Academy of Orthopaedic Surgeons and presented original research both nationally and internationally.

Patrick F. O'Leary, MD
Dr. O'Leary is an Associate Attending Orthopaedic Surgeon and former Chief of Spine Service at HSS. He has special interest in complex back and neck surgery, including revision surgery and surgical management of disorders of the cervical, thoracic and lumbar spine. He also has a special interest in the areas of surgical technology and advances in surgical technique. His patients include professional athletes. He is board-certified by the American Board of Orthopaedic Surgery and the American Board of Spine Surgery (re-certified Nov. 2011) and is a member of numerous prestigious professional organizations. He is a Fellow of the American Academy of Orthopaedic Surgeons, the International College of Surgeons, and the American College of Surgeons. Dr. O'Leary is also a member of the Cervical Spine Research Society, the Scoliosis Research Society and the North American Spinal Society.

Harvinder S. Sandhu, MD, MBA
Dr. Sandhu is an Associate Attending Orthopaedic Surgeon specializing in minimally invasive and selective spine surgery, motion preservation surgery, microsurgery, computer-assisted surgery, and biologic enhancement of spinal surgery. He completed his training in spinal surgery at UCLA, and subsequently served as Chief of the Spinal Surgery Service at UCLA until 1997, when he was recruited by HSS. With more than 75 peer-reviewed scientific publications, he has also received research awards from prestigious spine societies including the Volvo Award in Spinal Research. Dr. Sandhu is actively engaged in the research, development, and invention of medical devices and instruments used in spinal surgery and is currently investigating minimally invasive spine surgical techniques, bone Morphogenetic Proteins for spinal fusion, computer image guided surgery, and spinal surgery outcomes analysis (N.I.H. funded).

Scoliosis Service

Oheneba Boachie-Adjei, MD, Chief, Scoliosis Service
Dr. Boachie-Adjei is Professor of Orthopaedic Surgery at Weill Cornell Medical College and an Attending Orthopaedic Surgeon, specializing in pediatric and adult spine deformity. In 1998, he established F.O.C.O.S and has completed construction on a 50-bed hospital in Ghana. Three to four times a year, he leads a team of surgeons and other medical professionals to Ghana to perform surgery on patients with a variety of complex spine deformities. His research includes investigations into clinical outcomes in scoliosis surgery. He has published extensively and lectured internationally on pioneering reconstructive spine deformity procedures in pediatric and adult patients. In 2004, he received the Humanitarian Award from AAOS. He has received numerous awards from the Scoliosis Research Society, and was elected President of SRS in 2008-2009. He is an inventor with several patents for devices used in spine surgery, and is involved in several studies involving multiple centers.

Bernard A. Rawlins, MD, Fellowship Director, Scoliosis Service
Dr. Rawlins is Professor of Clinical Orthopaedic Surgery and an Attending Orthopaedic Surgeon. His practice specializes in adult and pediatric spine disorders, including deformity, cervical spine disorders, spondylolisthesis, disc herniation, and athletic spine injuries. He graduated from Columbia University School of Engineering and Applied Science with both bachelor’s and master’s degrees in applied mechanics, and received his doctor of medicine degree from Cornell University. His research interests include spine biomechanics, gene-mediated spine fusion, and surgical innovation. He has authored book chapters and published numerous articles in prestigious journals including the Journal of Biomechanics, Journal of Bone and Joint Surgery and the Journal of Spine. His work has resulted in patents and awards from the Orthopaedic Research Society, the Scoliosis Research Society and the Cervical Spine Research Society.

John S. Blanco, MD
Dr. Blanco is an Associate Attending Orthopaedic Surgeon at HSS and a member of the Division of Pediatric Orthopaedics. His spine interests include treating the full spectrum of pediatric and adolescent spinal deformities, including early onset scoliosis utilizing casting, growing rod and VEPTR techniques. His clinical areas of specialty include spinal deformity treatment, surgical and nonsurgical management of pediatric fractures, neuromuscular conditions, clubfeet (including Ponseti treatment), pediatric hip conditions, and management of angular deformities of the extremities including limb length inequalities. Throughout his career, he has published numerous articles, authored textbook chapters and lectured extensively on a variety of pediatric orthopaedic topics including scoliosis, pediatric fracture management, slipped capital femoral epiphysis, and cerebral palsy.

Matthew E. Cunningham, MD, PhD
Dr. Cunningham is an Assistant Attending Orthopaedic Surgeon providing pediatric and adult spine surgery for diagnoses including scoliosis, flatback, kyphosis, spondylolisthesis, disc degeneration, and instability. He incorporates minimally invasive surgical techniques (PLIF, TLIF, XLIF, BMAC) for both spinal deformity and degenerative conditions. He delivers care to the underserved, both in the HSS clinics and in West Africa as a F.O.C.O.S. volunteer surgeon. Academically, he peer reviews multiple journals, serves on the AAOS Basic Science subcommittee, and is extensively involved in clinical research both at HSS and through the ISSG multi-center study groups. Dr. Cunningham runs an independent HSS basic science laboratory with research emphasis on describing disc molecular biology to ultimately allow injections for gene-mediated manipulations of the disc, either for regeneration or fusion.

Daniel W. Green, MD
Dr. Green is an Associate Attending Orthopaedic Surgeon specializing in pediatric spinal disorders including scoliosis in young children, growing rods, and VEPTR techniques. Dr. Green is an active member of the Scoliosis Research Society and a member of the Growing Spine Study Group. He also provides emergency treatment of pediatric injuries and orthopaedic consults at New York Hospital-Manhattan, New York Medical Center of Queens, and Hospital for Special Surgery. A Leadership Fellow at the American Academy of Orthopaedic Surgeons, 2005-2006, he has special expertise in neuromuscular scoliosis as well as pediatric scoliosis surgery in young children.

Roger F. Widmann, MD
Dr. Widmann is Professor of Clinical Orthopaedic Surgery and an Attending Orthopaedic Surgeon and the Chief of Pediatric Orthopaedic Surgery at HSS. He specializes in pediatric spinal deformity surgery. He completed his medical degree at the Yale University School of Medicine, his orthopaedic surgery residency at the Harvard Combined Orthopaedic Residency Program, and his pediatric orthopaedic fellowship at Children's Hospital in Boston. He is a member of the Scoliosis Research Society and the Pediatric Orthopaedic Society of North America. Recent publications include the long-term follow-up of lumbar disc degeneration after spinal fusion for scoliosis in Spine, and the role of preoperative cardiac screening in scoliosis surgery, as well as the distal level of spinal fusion as a predictor of return to organized athletics both published in the Journal of Pediatric Orthopaedics.