



THE BETH ISRAEL DEACONESS MEDICAL CENTER

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The Department of Orthopaedic Surgery at the Beth Israel Deaconess Hospital continues to thrive and build in accordance with the strategic plan of the hospital. It has been a busy year. In September three new surgeons joined the staff, and we recruited a primary care sports medicine physician, a nurse practitioner and three new physician assistants. The number of operative cases and clinic visits has more than doubled compared to last year and we are rapidly outgrowing our clinic and office space on Shapiro 2. We are planning a relocation of our academic offices in the next year to open up more clinic space, and we have moved arthroplasty cases to the East Campus to free up operative time on the West Campus. We now have a dedicated trauma room operating 3.5 days per week.



Megan Anderson, MD

The new faculty includes Megan E. Anderson, MD who specializes in musculoskeletal oncology. Megan completed her residency at the Cleveland Clinic and her tumor fellowship at the MGH/Children's/BIDMC program. She has been instrumental in building the multidisciplinary tumor team at the BIDMC and has rapidly built a busy practice. She also works at Children's Hospital as part of the oncology subspecialty team. She provides primary orthopaedic care at our Chelsea Clinic once a week, and participates in our trauma call system. She has been active with presentations at the Musculoskeletal Tumor Society with presentations on alveolar soft part sarcoma (soon to be published in CORR) and synovial sarcoma. She has also been an enthusiastic addition to the teaching faculty for the general Resident Core Lectures as well as for the teaching conferences at BIDMC and Children's.

Arun Ramappa, MD joined us after completing his residency at the HCORP and a Fellowship in Sports Medicine at the Stedman-Hawkins program. He provides expertise in sports medicine along with R.G. Davis and is building a research program in sports injuries. He has assumed administrative responsibilities in the Department heading the committee of equipment procurement and cost containment. He was chosen as a Co-Director of Medical Research and Orthopaedic Consultant to the Boston Red Sox. Current areas of investigation include the relationship of ACL ruptures and cartilage inju-



Arun Ramappa, MD

ry, ACL ruptures and meniscal injury, patellofemoral syndrome mechanics and kinematics, shoulder and elbow injury in overhead athletes, and evaluation of rehabilitation techniques after shoulder surgery. He presented papers at a variety of meetings on subjects that included cartilage resurfacing techniques, the arthroscopic treatment of knees with arthritis, SLAP lesions, and rotator cuff arthropathy.

Ken Rodriguez, MF, PhD (aka "K-Rod") is our Chief of Orthopaedic Trauma. Ken was a resident in our program who completed a trauma fellowship at the Maryland Shock Trauma Center. Together with Chip Baker who was recruited in surgery to head the Trauma Center, Ken has rapidly organized orthopaedic trauma care at the BIDMC. In addition to establishing trauma care protocols, he has established a trauma room on an almost daily basis, which has relieved the OR add-on crunch at night. The volume of orthopaedic trauma cases has increased dramatically and many if not most of these are cared for in daytime hours. It has become so busy that we are recruiting a second trauma surgeon to relieve the clinical burden. Ken has begun several research projects and is looking forward to having the PGY'2 on board for a hands on trauma experience.



Ken Rodriguez, MD, PhD

Michael O'Brien, M.D. is a primary care sports medicine specialist who joined us after completing a fellowship in Primary Care Sports Medicine at Children's Hospital with Lyle Micheli, M.D. He joins our Sports Medicine Division providing the latest non-surgical treatments and interventions for a full range of sports related injuries and chronic pain.



Michael O'Brien, MD

Also joining the full time staff was Harris Yett, MD. Along with Douglas Ayres, they will provide orthopaedic care to patients from the Hebrew Rehabilitation Center. Doug has been working closely with the geriatrics service to provide specialized care for the elderly patients with fracture and arthroplasty needs. They have applied for grant support for an educational program in geriatric care of the orthopaedic patient, a unique program in the Harvard residency program. Dr. Ayres



Harris Yett, MD

and Yett run a clinic at the Hebrew Rehabilitation Center. They have moved their operative cases to the East Campus allowing elderly patients to get their postoperative care in conjunction with the geriatrics service on the Acute Care of the Vulnerable Elderly Unit (ACOVE). The program combines the principles of geriatric assessment with guidelines for optimal medical and nursing care of older patients in an interdisciplinary environment.

Robert Davis, MD has continued his clinical work and expanded his practice in sports medicine and trauma. He currently serves as an at large member of the Medical Executive Committee of the BIDMC and has an active role in teaching of the PGY-1 and Emergency Department residents that rotate on the Orthopaedic Department.

Charles Day continues to grow his practice as well as expand his research efforts in hand surgery. He was chosen to be a Leadership Development Participant in the American Society for Surgery of the Hand Young Members Leadership Forum and was the 2005 American Society for Surgery of the Hand Representative to the Young Physician Council of the American Medical Association. From the clinical science perspective, he has four IRB approved on-going projects in the controversial field of the treatment outcome of distal radius fractures. Two of the projects are retrospective studies examining his personal approaches to the treatment of distal radius fractures over the last two years and have been accepted for presentations at the 2005 American Society for Surgery of the Hand conference. A third project in distal radius fractures will evaluate the currently accepted surgical criteria for distal radius fractures in the geriatric patient population. And the fourth project is a prospective randomized study evaluating 3 different treatment options for extra-articular distal radius fractures (Colle's) – closed reduction and splinting, closed reduction and percutaneous pinning, and open reduction and internal fixation. He produced an electronic web-based Informed Choice module on "Hand Masses" for the Orthopaedic Connection (AAOS Patient Education Committee). He continues to contribute actively in the medical student educational program and is in the process of submitting a medical student IRB to the HMS to survey their subjective and objective knowledge of some fundamental musculoskeletal diagnoses. He was chosen as one of the Rabkin Medical Education Fellows with the Shapiro Institute for Education and Research at BIDMC.

We have successfully completed searches for additional faculty in spine, hand, and foot and ankle and, those additional faculty should be up and running by next year's annual report to this Journal. As noted, we also hope to add an additional trauma surgeon.

My time on the American Board of Orthopaedic Surgery and the Residency Review Committee ended this year, but I continue to be active on the AAOS Board of Directors and am the Chair of the Council of Musculoskeletal Specialty Societies. Needless to say, the time I used to spend on these activities is rapidly being filled by the administrative and clinical duties of the Department, but I am delighted to report that we have a

very collegial group of busy orthopaedic surgeons who work well together, which make my job both easy...and fun!

Donald Reilly, MD continues his clinical practice at the New England Baptist Hospital and the BIDMC. He remains active in the teaching of Harvard residents and HMS students and continues his research in the area of knee replacement.

Drs. Louis Meeks, Lars Richardson and Jeffrey Zilberfarb continue their busy practice and contribute substantially to the education of the sports medicine resident on their service, as well as to the education of HMS students.

Drs Hyman Glick, and Tobin Gerhart, have moved their practice to Harvard Vanguard but continue to operate at BIDMC. Dr. Saechin Kim continues his busy practice of patient care and contributes to the trauma call rotation.

Dr. Paul Glazer continues his practice in the Shapiro Clinical Center and continues his research in several areas of spine surgery. Dr. Hillel Skoff has an active practice in Hand Surgery.

Dr. Augustus A. White, III devotes his attention and energies to the students of Harvard Medical School, serving as Master of the Holmes Society. We had the first annual Augustus A. White, M.D. Spine Symposium on October 13, 2004. Past fellows and friends from around the country attended and were treated to an exciting program discussing aspects of spine surgery and acknowledging the numerous contributions that Dr. White has made to orthopaedic surgery and culturally competent care in the United States. Alvin Crawford, MD was the keynote speaker and gave an outstanding tribute to Gus's life and accomplishments and we were fortunate have Anita and their three daughters join us for the event. Stay tuned – this year's event will be even more spectacular. You are all invited on October 19, 2005.



Left to right: Charles H. Epps, MD, Augustus A. White, III, MD, PhD, Alvin H. Crawford, MD, Randall C. Morgan, MD

The Musculoskeletal Medicine Unit, located in the orthopaedic suite of the Shapiro Clinical Center is under the direction of John Donohue, MD. John is a rheumatologist with a joint appointment in the orthopaedic and rheumatology division. He and Sharon Gates, an experienced nurse practitioner, continue to provide excellent care for non-operative musculoskeletal disorders in close collaboration with our Department members.

This year they were joined by another nurse practitioner, Deb Brown who came to us from MIT. Deb received her BSN from the University of Massachusetts, Amherst and her MSN from Simmons College, Boston. Her clinical interests are in the areas of sports medicine, women's health-osteoporosis and female athlete triad, general orthopaedics, orthopedic oncology, joint arthroplasty and trauma.

Another exciting event this year for Orthopaedic Department was the return of residents to the BIDMC. The HCORP was reviewed this year and granted an approval for 2 more residents per year (a total of 12) and we successfully recruited two PGY-2 level residents who spent their PGY-2 year at the BIDMC on rotations in trauma, tumor, arthroplasty hand and sports. The addition of more residents in the program has led to an overall re-structuring of the program and an ultimate return of a total of 4 PGY-1 interns and 4 orthopaedic residents at the BIDMC.

The Orthopaedic Biomechanics Laboratory at the Beth Israel Deaconess Medical Center is active and pursuing a variety of research venues working collaboratively with the New England Baptist Bone and Joint Institute at BIDMC to combine the strengths of the mechanics and biology of bone and cartilage. The lab trains numerous Harvard residents, medical residents and engineering students from the Massachusetts Institute of Technology and Boston University. The Orthopaedic Biomechanics Core of this laboratory effort is under the direction of Brian D. Snyder, MD, PhD who is a pediatric orthopaedic surgeon at Children's Hospital and in addition to his clinical work is very active in the laboratory. With funding from The Susan G. Komen Breast Cancer Foundation his team is evaluating fracture risk in breast and prostate cancer patients with skeletal metastases. The research questions being addressed: (1) Are analyses of the structural properties of bones with metastatic cancer measured by CT better at predicting the risk of fracture than current clinical and radiographic guidelines? (2) Is there a relationship between the measured structural properties of a bone containing a metastatic tumor and the patient's functional performance? (3) What are the material properties of metastatic osteolytic and osteoblastic tumor tissue? To answer these questions he is measuring the structural properties, predicting fracture risk and following for at least four months of 150 breast cancer patients with skeletal metastasis to evaluate fracture occurrence, response to treatment and the overall effect of bone metastasis on functional performance. If this study is successful, it is his hope that fracture risk prediction using cross-sectional bone imaging and engineering structural analysis will be routinely used in the evaluation of patients with benign and metastatic bone tumors to monitor response to treatment.

Dr. Bouxsein's research is focused on understanding the material and structural determinants of skeletal fragility using mouse models and human studies. She has an NIH-funded research program to study the role of β -arrestin2, an intracellular adaptor molecule which is important in regulation of G-protein-coupled receptor signaling, in mediating the skeletal response to parathyroid hormone and in modulating the effects

of β -adrenergic signaling in bone. Paralleling this research in mice, she is evaluating the changes in bone density assessed by volumetric QCT in a clinical trial of once-weekly PTH therapy. In addition, she has a collaboration with investigators at the Jackson Laboratory in Bar Harbor, ME whose aims are to identify the genetic determinants of trabecular bone microarchitecture and strength using inbred mouse strains. She is recognized world-wide as a leader in the field of biomechanics as it relates to the etiology and treatment of osteoporotic fractures, as evidenced by her invitation to speak at the NIH-sponsored Consensus Conference on Osteoporosis, the NIH-sponsored conference on Skeletal Genetics, and to serve on the organizing committee of the NIH-ASBMR sponsored workshop on Bone Quality in May 2005. Dr. Bouxsein is a member of the committee of scientific advisors of the International Osteoporosis Foundation, and in 2004 wrote guidelines for the care of patients with fragility fractures, published in the Journal of the American Academy of Orthopedic Surgeons.

Ron Alkalay, Ph. D., has focused this year on pathologic fractures of the human spine that are a major cause of morbidity in both the adult and elderly population. He is looking to elucidate the role of vertebral structures, trauma and new treatment modalities, in effecting the fracture and post-fracture structural response of human thoracolumbar spines. In particular, the causative relationship between cement augmentation and accelerated failure of vertebral levels, immediately adjacent to the augmented level, is being investigated. For this work he employs specialized six degree of freedom mechanical testing protocols, as well as, a CT compatible computer controlled spinal testing device to gain real time CT images of the deforming spine, both of which were developed in the laboratory. This work is being extended to evaluate to feasibility of using a CT image based structural analysis program to classify whether vertebrae with metastasis are suitable for new methods of cement augmentation. He is also investigating the ability of MR based diffusion imaging to delineate the effect of age-related degeneration on the anatomy and structure of human intervertebral discs, to detect the change in the response of its main structural tissue components to mechanical load and to identify the role of disruption in diffusion pathways within the vertebral endplate on the etiology of disc degeneration.

Robert Fajardo, Ph.D. has continued his comparative mammalian research investigating the relationship between body size and trabecular architecture, as well as body size and osteoclast resorption. He and Dr. Bouxsein were awarded an NIH Shared Instrumentation Grant to purchase a new micro-computed tomography scanner (microCT) for the OBL. With this purchase, the OBL will now have three microCT scanners. In addition, Drs. Fajardo and Snyder were part of a team of scientists, along with researchers from MIT and Tufts University, which were awarded two NIH grants for work on tissue engineering of bone. Finally, Dr. Fajardo will represent Harvard Orthopedics in a small scientific team of researchers that will conduct a microCT-based quantitative study of the 3.2 million year old human ancestral fossil, Lucy (*Australopithecus afaren-*

s/s). Dr. Fajardo was invited take part in this research, which will begin within the next year when the Lucy travels to the U.S. for an extended visit.

All of this bodes well for the future of Orthopaedics at BIDMC. The Hospital is committed to providing the resources to rejuvenate this Department to one of the best in the country and we are convinced that the BIDMC will once again be a vital part of the Harvard Combined Orthopaedic Residency Program.

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