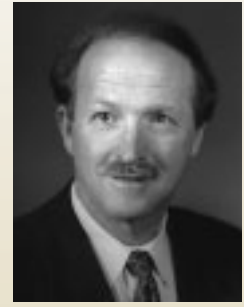




BRIGHAM AND WOMEN'S HOSPITAL

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Greetings from snowbound Boston. It was great to see many of you at the Academy and I appreciate the support you provide to make our alumni gathering a special event. We have had a long winter and both our country and healthcare system are dealing with difficult situations. However, as one of the stewards of your residency program, I am pleased to report that things, for the most part, are in good order.

Since my last report, the Brigham & Women's Hospital continues to be fiscally sound and is prospering under the leadership of Dr. Gary Gottlieb, the new President appointed in March 2002. We are particularly proud of the fact that the orthopedics program has continued to grow at the Brigham and its satellite facilities. However, while the Brigham had its best financial year ever and met all of its margin targets, the immediate future in Massachusetts is not very bright. In order to address a deficit budget, Governor Romney has cut the Medicaid Program so that 50,000 patients will now be without any health insurance. The Free Care pool for hospitals predominantly benefits Boston Medical Center and Cambridge Hospital and, of course, there is little or no relief for physicians caring for these patients. Our institution, like yours, has benefited in the past by the offset of operating expenses provided by a strong economy and market. With the poor economy, however, we now have to rely on our operating margins for the bottom line. Added to this, the continued reduction from commercial, government and HMO payers poses a threat on the revenue side to both hospital and physician groups. While the Brigham and MGH have been "buffered" by favorable contracts, these are all now being renegotiated in the presence of a poor economy.



Did I mention the cost of living in Boston and the fact that we have had one of the worst winters in recent history? Well, enough of that. The pluses far outweigh the minuses, our group continues to expand both on the clinical and research side and our residency and fellowships are thriving. We have just completed a five-year external review of the Department of Orthopedics by the Medical School and I am pleased to report that the process went very well. As the deadline for this report falls on the heels of that review, I will share with you some of the material from my report to the Dean. As you will see, it provided an important opportunity for me and the group to reflect on our evolution as a Department, the current state of our clinical, research and teaching programs, and plans for the future.

Chairman's Report presented March 24, 2003:

HISTORY OF THE DEPARTMENT

After nearly three decades of service, Dr. Sledge stepped down as Chief in 1996 and I was recruited to be the new Chief of the Department. Although new to the position, I was not new to the Brigham. My association with the Brigham and Women's Hospital began in 1970 when I accepted a position as medical intern at the Peter Bent Brigham Hospital. During a rotation in rheumatology at the Robert Breck Brigham Hospital as a junior medical resident, I realized that my true interests were in orthopaedic surgery and I applied to the Harvard Combined Orthopaedic Residency Program. After completing my military obligation at the National Institutes of Health and obtaining Board Certification in Internal Medicine, I entered the Harvard Combined Orthopaedic Program in 1975. I graduated from the Program in 1978, having served as Chief Resident in Orthopaedic Surgery at the Massachusetts General Hospital. I then became a Joint Arthroplasty Fellow at the Robert Breck Brigham Hospital and eventually a Staff Surgeon and Researcher at that institution. As part of the merger in 1980, I became an employee and then member of Brigham Orthopaedic Associates. Except for an eighteen-month sojourn as Chairman of Orthopaedics at the New England Baptist Hospital and Founder and President of the New England Baptist Bone & Joint Institute, I have been at the Brigham for over thirty years. It is for this reason that I was honored to be chosen as Chief of the Department. Coincident with my assuming the Department Chair, I was elected by my associates to be President of the for-profit clinical entity (BOA) and the not-for-profit foundation (BOF).

In 1997, the Departments of Orthopaedic Surgery at Brigham and Women's and Massachusetts General Hospitals



agreed to merge and form a Partners Department of Orthopaedic Surgery. Dr. James Herndon was recruited to serve as Chairman of the newly formed Partners Department. As Chief of the Brigham Department, I have worked closely with Dr. Herndon and my counterpart Dr. Harry Rubash, who serves as Chief of the Department at the Massachusetts General Hospital.

REVIEW OF THE PAST FIVE YEARS

The Department of Orthopaedic Surgery at the Brigham and Women's Hospital has undergone significant change and growth over the past six years. Coincident with the transition in leadership in 1996, the Department faced challenges in every aspect of its operation and program - governance, organizational structure, administrative and financial leader-

ship, recruitment and clinical programs. At the time, many of these challenges arose from the Department's need to join the Brigham and Women's physician organization, due to be operational in January 2000. Others were brought about by the realities of managing a complex clinical practice and supporting research at a time of declining clinical income, made worse by an administrative infrastructure that was insufficient to budget, manage and model an increasingly complex financial entity. For these reasons, the Department needed to revise its financial structure and governance; recruit a professional management team with specialized expertise in financial management; recruit physicians in each of the orthopaedic subspecialties; and finally, utilize community-based satellite facilities as well as office and OR facilities at the Faulkner in order to grow. As a Department, we are proud of the work that has been done to meet these challenges and the changes and programs that have been put in place. These accomplishments and our current position are summarized below.

GOVERNANCE, ORGANIZATIONAL STRUCTURE AND FACULTY COMPENSATION PLAN

In 1996, the Department of Orthopaedic Surgery's practice plan existed as a for-profit entity, Brigham Orthopaedic Associates (BOA), as it had been set up in 1980. The Department's clinical activity was managed through BOA and all but a handful of senior physicians were employees rather than members. The Department's research program was managed by the Department's foundation, Brigham Orthopaedic Foundation (BOF).

Recognizing the need to reform its organization and governance, the Department, the BOF Board and the Hospital engaged a team of consultants to conduct a thorough review of the governance, financial performance and Department's direction. The first step was to incorporate BOA, the for-profit entity, into the not-for-profit BOF. The final transition occurred in 2001 as the Brigham Orthopaedic Foundation joined the Brigham and Women's Physician Organization (BWPO), whose sole corporate member, like the MGH Physician's Organization, is Partners Healthcare.

As part of this transition, the governance structure of BOF was reorganized to be more open and inclusive. Under the new plan, the Chief heads the executive committee, which is comprised of both elected and appointed members (3 of each). Extending beyond the Department, the Chief also sits on the executive committee of the BWPO and Brigham and Women's Chiefs Council. Dr. Christopher Evans currently sits on the BWH Research Council. Resident and student education is directed by Dr. John Wright, who reports to the Harvard Combined Orthopaedic Residency executive committee.

ADMINISTRATIVE LEADERSHIP AND FINANCIAL MANAGEMENT

One of the most important recommendations from the consultants working with the Department on financial and governance reforms was that the Department needed an experienced team of senior level professionals in management and finance. Toward that end, Mr. Pat Bauer was recruited to serve as Administrative Director, and Ms. Deborah Leonard was

recruited to serve as the Department's Chief Financial Officer. These individuals are now responsible for the financial management and modeling for the Department, in consultation with the Chief and Executive Committee. After years of fragmented and often incomplete data that made budgeting and financial planning difficult at best, we now work from a comprehensive annual budget and have access to accurate financial data that allows us to formulate business plans and model new program development, such as recruitments and proposed satellite practices. In addition, Mr. Bauer and Ms. Leonard have successfully established a clinical management team that has improved the Department's clinic operation at the BWH and at the satellite facilities. The team was awarded a Partners in Excellence Award in 2002 for their work with Radiology to improve the flow of patients between these two clinical services.

FACULTY RECRUITMENT AND ACADEMIC APPOINTMENTS

Upon accepting the Chiefship at the Brigham and Women's Hospital, I made physician recruitment one of our highest priorities, to address several key retirements coupled with areas of clinical deficiency that had to be filled. With the help and commitment of the Hospital's senior leadership, we were able to recruit three new physicians in a short time that added new clinical expertise. These physicians were:

- Dr. Charles Brown, recruited as Chief of Sports Medicine.
- Dr. Tamara Martin, recruited to the group in the areas of foot and ankle, and sports medicine.
- Dr. Richard Ozuna, a HMS graduate and former resident, recruited to return to the Brigham with fellowship training in spine surgery.

The Department of Orthopaedic Surgery at the Brigham subsequently benefited from several joint recruitments in the late nineties made possible by the financial commitment of Partners Healthcare to the Partners Orthopaedics. We also were able to make additional Brigham-based recruitments in 2000. These physicians were:

- Dr. J.P. Warner, recruited as a joint appointment with the MGH to develop the Partners Shoulder Service.
- Dr. Mark Vrahas, recruited as a joint appointment with the MGH to establish the Partners Orthopaedic Trauma Service at the BWH and MGH, specifically to develop the service from a chief resident service to an attending service.
- Dr. Chris Chiodo, HMS graduate and former resident, recruited to the BWH as part of the Foot and Ankle Service.
- Dr. Peter Millett, recruited to the BWH as part of the Shoulder Service.

- Dr. Wolfgang Fitz, recruited to the BWH as part of the adult reconstruction service.
- Dr. Phil Blazar, recruited to the BWH as part of the Hand and Upper Extremity Service.

Presently we are in the final phase of recruiting an additional orthopaedic trauma surgeon to join Mark Vrahas as part of the Partners Orthopaedic Trauma Service. Dr. Vrahas will continue to practice between the BWH and MGH, while this new trauma surgeon will be based solely at the Brigham.

One of the issues that I have worked with Jim Herndon to address is the academic standing and productivity of our faculty. While many are nationally recognized in their fields, they face an increasing challenge driven by increased clinical demands and decreasing reimbursement that limits time for scholarly activities. With our integration into a single not-for-profit foundation and then the BWPO, our emphasis has been, by promotion, on aligning all surgeons to an academic full-time status. We are pleased that over the past five years, four clinical faculty members at the Brigham have been promoted from Instructor to Assistant Professor, Drs. T. Martin, S. Martin, Wilson and Wright. Dr. Scott and I have been promoted to full Professor, while Drs. Vrahas and Blazar have been appointed Assistant Professor, with Dr. Millett also up for review. Among the research faculty, Drs. Glowacki and Evans have been promoted to full professor; Dr. Brezinski to Associate Professor; and Drs. Bellare and Ghivizzani to Assistant Professor.

CLINICAL PROGRAMS AND FACILITIES

Based on the recruitments described above, the Department's overall clinical program has grown from one largely devoted to adult reconstruction, to one with fellowship-trained surgeons in each of the eight recognized subspecialty fields of orthopaedic surgery. We have also seen a dramatic shift from inpatient to ambulatory surgery in many of the subspecialty areas, a change that has been driven by new minimally invasive techniques, arthroscopic and image-guided surgery, and an emphasis on regional anesthesia. Other technological advances that have been incorporated into the Department's practice are microsurgery and most recently computer-assisted surgery.

One of our primary objectives for the coming years is to integrate our specialty services into multidisciplinary groups in those areas that make for better patient care. One example is the addition of physiatry to the Spine Service. Dr. Zach Isaac, a physiatrist who is based in the Department of Physical Medicine and Rehabilitation at Spaulding, is seeing patients in the Orthopaedic and Arthritis Center. Dr. Isaac offers increased access for patients with back pain and provides greater options for non-surgical patients. The Department's long-standing clinical collaboration between rheumatology and joint arthroplasty is another example of this practice. The Department is also working with the Hospital to include sports medicine and other orthopaedic specialties in the Women's Health Program.

With the addition of eight full-time orthopaedic surgeons, the Department's volume of office visits and surgical

procedures has grown considerably, particularly in the area of ambulatory surgery. Total office visits from FY98 through FY02 increased 31%. While 97% of these visits took place at the Ambulatory Building at the BWH in FY98, the Department's ambulatory practice is now spread across five locations – the BWH campus, 850 Boylston, Braintree, Faulkner Hospital and New England Baptist Hospital, with BWH visits representing an estimated 80% of total visits. This expansion has enabled our growth, but the systems required to manage physicians at five sites are significant. Our future challenges will be to integrate and increase the efficiency of systems at these physically separate locations, and to preserve the interaction among our surgeons and education of students and residents that are vital to a strong Department.

The total number of surgical procedures performed increased by 39% from FY98 through FY02. The increase in inpatient procedures over this period was just 6.4%, indicative of a saturated inpatient infrastructure, while the number of outpatient surgical procedures doubled from a relatively small base in FY98. Viewed differently, in FY98 outpatient surgery represented only 28% of the Department's surgical procedures, as compared to 43% in 2002. Because the Department's surgical practice is still heavily weighted to primary and revision arthroplasty, the percentage of outpatient surgery is lower than what might be expected in many orthopaedic programs.

The Department's growth as reflected in the numbers above, while significant, has occurred with limited facilities in the office, inadequate access to the operating room and no increase in resident numbers. In fact, most of this growth has occurred outside the Brigham and Women's Hospital campus due to the limitation of our facilities. Over the past three years we have worked closely with Mr. John Fernandez, Vice President of Surgical Services and other senior members of the BWH administration to develop satellite office locations, as well as an overall strategy for orthopaedics at the Faulkner. The Department's Foot and Ankle Center is based at the Faulkner. For these reasons, we have had substantial growth at these satellite locations as reflected in the numbers for office visits above. While this is novel to the history of orthopaedic surgery at the Brigham, it has been essential for our growth. We have also strengthened our affiliation with Braintree Hospital in conjunction with our rheumatology colleagues and the Hospital's satellite office in Braintree. These satellites as well as the office space at Faulkner Hospital will enable the Department to continue its growth.

Of significant concern to the growth of our surgical practice is the availability of OR space at the Brigham for both inpatient and outpatient procedures. This is quite clearly an escalating problem, given the shift to ambulatory surgery as the standard of care for many procedures. While there has been some relief with the addition of OR time at the Faulkner, this has not entirely solved the problem. Beginning in February 2002, the Hospital reached an agreement with New England SurgiCenter to utilize its facilities. Our surgeons did 554 outpatient surgeries at the Center from February through September

of 2002, compared to 1,188 for the full year at Faulkner Hospital in FY02. While this is an important new asset to our clinical program, it is not yet clear what the limit to growth will be at this location. This issue of access to appropriate OR space remains one of the greatest obstacles to the growth of our program. As many of our cases are complex arthroplasty, spine and trauma cases, we must maintain a large presence at the BWH to utilize the expertise of other integral departments.

ORTHOPAEDIC RESEARCH PROGRAMS

As in the initial years, the challenge in the Orthopaedic research laboratories is one of funding and integration with the clinicians, amongst the researchers and with other departments. Federal grant dollars for clinically based programs are often difficult to obtain. Industry grants are often offered with insufficient overhead funds and the clinical dollars available to supplement the research effort are decreasing. Interestingly, however, the research program continues to expand, diversify and stratify along varied interests. Initially, the research activities were based in two areas, the first being tissue engineering and material sciences headed by Dr. Myron Spector and the second skeletal biology headed by Dr. Julie Glowacki. While both of these have expanded, there have also been several key additions to the Brigham's orthopaedic research program, including programs in OCT imaging, tissue engineering and cartilage repair, molecular orthopaedics/gene therapy and the application of nanotechnology to orthopaedic science. The Center for Molecular Orthopaedics under the direction of Dr. Chris Evans was established at the BWH in 2000 as part of the Partners Department of Orthopaedic Surgery initiative launched in 1998. Dr. Mark Brezinski, head of the OCT program relocated to the BWH in 2000 in order to further his collaboration with Dr. Scott Martin, a member of the Sports Medicine Service. This collaboration was the basis for Dr. Brezinski to redirect his OCT imaging work from cardiology to orthopaedics. In 2001, Karen Yates relocated her laboratory in skeletal biology to the BWH in order to facilitate her collaborations with Drs. Glowacki and Mizuno in the Skeletal Biology Program. Dr. Anuj Bellare heads the Orthopaedic Nanotechnology Group in conjunction with Dr. Wolfgang Fitz, an arthroplasty surgeon with research training in biomaterials. Dr. Sonya Shortkroff has also joined the nanotechnology group to concentrate on the varied biological reaction to and influence upon orthopaedic biomaterials. Dr. Martha Murray, a graduate of the Harvard Combined Orthopaedic Residency Program interested in sports medicine and women's health, has established her research program at the BWH and Children's Hospital. Finally, Dr. Tom Minas heads the Cartilage Repair Center, a clinical research center and clinical program that is part of the Arthroplasty Service. This growth represents novel research programs such as the Center for Molecular Orthopaedics, focused on gene therapy to treat rheumatoid and osteoarthritis; the optical coherence tomography program, focused on the development and use of OCT systems for the early diagnosis of osteoarthritis and assessment of articular damage; the cartilage repair program, focused on the use of tissue engineering techniques to grow

autologous cartilage for replacement; and the nanotechnology program, focused on developing new materials, particularly for joint replacement. The Center for Molecular Orthopaedics has also established a vigorous viral vector core that can produce all major types of viral vector. No other orthopaedic facility has such a core. Each of these programs has tremendous potential for influencing the diagnosis and treatment of arthritis and articular injuries over the coming years.

As the orthopaedic research program has grown and diversified a critical facet has been the emphasis on translational research and inclusion of the clinicians into the laboratory program, for example, the application of OCT imaging for diagnosing articular damage and assessing emerging treatments; tissue engineering and gene therapy.

Additionally, we have fostered a long-standing clinical and laboratory partnership with our Rheumatology colleagues. We are hopeful that Dr. Jeffrey Katz, a member of the Department of Rheumatology and close collaborator with clinical scientists in our Department, will be granted a joint appointment between our two Departments. The recruitment of Dr. Phillip Lang, a leader in MRI musculoskeletal imaging, by the Department of Radiology in 2000 promises to provide additional opportunities for collaborative research. Our semi-annual research retreat has also played a major role in fostering these multidisciplinary collaborations. At each retreat we focus on three or four laboratories involved in musculoskeletal research in the Longwood Medical Area, with presentations by scientists from the Departments of Orthopaedics, Radiology, the Joslin Clinic, and the Divisions of Endocrinology and Rheumatology.

Several important accomplishments and promising discoveries from our laboratories over the past year include the following:

- Development of polarization sensitive OCT imaging for early diagnosis of osteoarthritis by identifying collagen breakdown.
- Use of OCT to develop premier animal model for the study of osteoarthritis.
- Development of OCT for assessment of ligament and tendon damage.
- For the first time, the persistent expression of anti-arthritis genes in joints. Inability to achieve this has been the major impediment to the development of a clinically useful gene therapy for arthritis.
- A novel “gene plug” system as a basis for improving cartilage repair.
- Development of an in vitro model of ACL cell migration from tissue into tissue-engineered gels for use in the joint.
- Demonstrated increased rates of ACL cell migration and proliferation in tissue-engineered gels using autologous (derived from each patient’s own blood) growth factors

- Discovery that virtually all musculoskeletal connective tissue cells can express the gene for alpha-smooth muscle actin and can contract.
- Implantation of a type II collagen scaffold can improve the results with microfracture for cartilage repair.
- Implantation of a chondrocyte-seeded type II collagen matrix yields more favorable cartilage repair than implantation of the chondrocytes alone.
- Use of nanotechnology to improve the strength and fatigue characteristics of PMMA.

Our growth in orthopaedic research programs has significantly increased the Department’s volume of NIH sponsored research and has served to set higher expectations for productivity and quality across our research program. Since 1997, the Department’s funding from NIH, including indirect costs, has more than tripled, for a total of \$1,920,421 in FY02 and \$1,702,008 received YTD for FY03. In addition, \$1,504,562 is already committed for FY04-05. Industry-sponsored support has increased to a total of \$620,618 in FY02.

MEDICAL STUDENT, RESIDENT AND FELLOW EDUCATION

Medical student, resident and fellow education in orthopaedic surgery at the Brigham has been challenged by an increasing clinical demand, decreasing financial support, and fragmentation of the delivery of care to many outside facilities. In addition, decreasing research dollars have made it difficult to fund medical student research opportunities in our labs and a dedicated research opportunity for residents in the Harvard Combined Orthopaedic Residency Program.

With regard to medical student education, the cessation of the second-year musculoskeletal core for HMS students has made it increasingly difficult to expose students to orthopaedics prior to their surgical clerkship. Of particular concern is the students’ knowledge of how to do a physical examination of a patient with a musculoskeletal complaint. For the past fifteen years I have led a hands on physical diagnosis course for the second year HST students rotating through the BWH for their Introduction to Clinical Medicine program. As a Department faculty we are increasing our participation in the physical exam portion of the Patient/MD course in Year 2. As a Harvard orthopaedic faculty, we are also addressing this problem by designing and implementing a core curriculum for the third-year clerkship that includes a single mandatory case conference that provides in depth discussion of key orthopaedic cases tied to the core curriculum. The case conference also utilizes live models to help with instruction in physical diagnosis. Although education of medical students remains at the individual hospitals, the case conference includes medical students in their surgery clerkship at all of the participating hospitals.

Upon accepting the position of Chairman of the Partners Department of Orthopaedic Surgery, Jim Herndon also became Program Director of the Harvard Combined Residency Program. Chiefs from each of the participating Hospitals have

worked with him over the past five years to revise the rotation schedule and strengthen the educational elements of the program. An additional challenge occurred in terms of the combined Harvard Orthopaedic Residency Program, which at that time included the BWH, Children's, Beth Israel (now Beth Israel Deaconess Medical Center [BIDMC]) and the West Roxbury Veteran's Hospital. The training program now was spread over three independent healthcare networks and the Veteran's Hospital. With the leadership of Dr. Herndon and the Executive Committee, the established grand rounds at the BWH, BIDMC and Children's was combined with a fledgling grand rounds at the MGH to have a single rounds that began the CORE training day of Wednesday of each week. At the BWH, we have obtained funding and developed an arthroscopy teaching laboratory that utilizes knee models for resident training in arthroscopy.

The residency program was also stratified according to orthopaedic subspecialty programs such as arthroplasty, sports medicine, pediatrics, etc. The change in the curriculum structure posed a challenge to determine a schedule that would best suit the educational needs of the residents and at the same time provide comprehensive patient care.

As the Department grew to include all the orthopaedic subspecialties, the Department's fellowship programs have evolved in the following ways:

- Original core arthroplasty fellowship has developed into one that now includes both national and international participants with three national and five to seven international fellows per year.
- Hand and Upper Extremity Fellowship in combination with Children's Hospital was firmly established and thriving but the addition of the Partners Shoulder Service created new opportunities for further integration
- Addition of a six-month foot and ankle fellowship for one fellow
- Addition of a spine fellowship
- Addition of a tumor fellowship

FUTURE CHALLENGES AND OPPORTUNITIES

The challenges that face our department are similar to those facing every academic surgical department both in Boston and the rest of the United States. While our primary goal remains patient focused, we are also concerned about our ability to nurture and support the academic interests of our clinical faculty, as well as the needs of our research and training programs. We need to make sure that we are able to provide the type of research and teaching opportunities that attract and sustain surgeons in academic practice. With regard to our clinical programs, we see the opportunity to strengthen the multidisciplinary nature of our clinical practice by working more closely with colleagues in other Departments. This desire is well supported and inspired by the Brigham's plans for better utilizing the Longwood and Faulkner campuses. In the area of

research, we have a tremendous opportunity to better integrate the individual laboratories and programs within orthopaedics in order for capabilities in one area to benefit another. For example, the minimally invasive OCT techniques for evaluating cartilage developed by Dr. Mark Brezinski using OCT imaging may be a valuable tool to Drs. Evans and Ghivizanni in the Center for Molecular Orthopaedics. Similar synergies exist in tissue engineering, cartilage repair and nanotechnology. As a Department, we feel strongly that we have the administrative leadership, system of governance and cooperation with both the Brigham administration and the Medical School required to meet these challenges and take advantage of the opportunities. The challenges and opportunities listed below are not listed in a specific priority.

RESIDENCY EDUCATION

This year will see many changes in resident training and resident allocation. After over thirty years of existence the Chief Residency will be discontinued. As a board eligible Junior Associate, the Chief Resident maintained an orthopaedic service which now must be redistributed to the Partners Trauma Service and the remaining entities at the BWH. In spite of significant growth in the clinical program, as well as movement of a portion of the program to satellite facilities, resident numbers have not increased commensurate to need. Moreover, the challenge of a focus on education rather than service becomes even more strained with insufficient resident allocation. The addition of the new resident work hour limitations will further add to that challenge. An informal survey of the residents suggests that the work demand at the BWH is higher per allocated resident than at the other institutions. A variety of options including increase in utilization of physician extenders such as PAs and nurse practitioners coupled with an expanding clinical responsibility for the Fellows may be necessary. Moreover, teaching and nonteaching services based upon a 360° evaluation process may be needed.

FELLOWSHIP TRAINING

As the standard of training has mandated a fellowship for most orthopaedists, the applicants for fellowship have increased. Our commitments are generally made three years prior to matriculating and funding has become a critical issue. With the limitations on revenue generation on ACGME accredited fellowships and the increasing restrictions of industry sponsored education grants, the future funding of the fellowship program is challenged.

MEDICAL STUDENT EDUCATION

As the HMS curriculum changes it is increasingly difficult to influence HMS students early in their education. We continue to encourage students interested in Orthopaedics to spend summers in the HMS co-funded research program and to shadow our physicians. The proximity of the BWH to the Medical School is an advantage. We continue to run the Orthopaedics component of the HST Introduction to Clinical Medicine at the BWH and are pleased that our reviews are excellent. We are troubled by the mechanism of assignment of students to sub-internships and feel that it is necessary that

the Brigham continue to be fairly represented. To that end, we have changed our program and obtain routine feedback from the students by means of exit interviews. There is opportunity for improvement of the orthopaedic section of the general surgery rotation of the third-year students. The formal educational aspect of that program has been greatly benefited by the work of Dr. Timothy Hresko who has coordinated an orthopaedic core for the students.

FACULTY RECRUITMENT AND RETENTION/ACADEMIC CAREERS

Perhaps our greatest challenge as an academic department is retaining high quality surgeons in academic practice. To do so will require that we nurture and support the type of departmental environment that will allow young faculty members to be a part of a financially sound, stimulating clinical practice involved in teaching, while at the same time establish productive research programs as individual investigators and/or in collaboration with PhD scientists in the Department. The decreasing clinical reimbursements and increased time spent due to increased healthcare regulations has limited the time that each surgeon has to devote to academic pursuits. While important, the Department Development Fund is insufficient to adequately compensate the members of the Department to pursue academic and educational activities. Moreover, we currently do not have adequate support staff in this area, as we lack staff such as a grants administrator, research nurses, and audio-visual personnel.

The Boston area is facing increasing problems in all specialties with retention and recruitment of faculty. Revenue restriction and redistribution by payers, salary guidelines imposed by the Medical School and the high cost of living in the Boston area have created this challenge. The high overhead costs of hospital-based practice also contribute to this pressure and reducing them represents a significant challenge for the Department's senior management team. As protected research time becomes more difficult to permit and teaching activities are not reimbursed, the distinction between academic and nonacademic practices becomes blurred. Recruitment and retention of researchers is equally difficult as there is a decreasing pool of clinical dollars to fund research and relatively lower salaries are more affected by the high cost of living in this area. Translational research is challenged as it is not fairly rewarded during the promotion process nor is it as easy to fund through federal sources. Many of the studies in orthopaedics involve cooperation with industry and obtaining these funds is increasingly difficult for several reasons. First, problems of conflict of interest rightly limit participation of the clinician researcher. Moreover, decreasing profit by the companies has commensurately decreased both their educational and research grants to academic orthopedic centers.

CLINICAL AND RESEARCH FACILITIES

Our laboratory, clinical and academic facilities are insufficient at present and inadequate to allow for expansion. With the development of the Executive Committee on Space (ECOS) there are discussions to apportion laboratory space according to total modified direct costs (TMDC). On that model, the

surgical services are unable to compete with the Departments of Medicine, Pathology and Neurology. Fortunately, in discussions at ECOS, which reports to the Hospital CEO/President, these issues are under consideration. Options include a minimum square foot allotment for each academic department and other measures of contribution to the institution.

The clinical and academic space is limited and in need of both expansion and rejuvenation. We feel it is essential to maintain our close clinical ties with the Department of Rheumatology and that our main clinical activities be based at the BWH campus. We are actively pursuing options for expansion of both ambulatory outpatient surgery and inpatient expansion at our satellite facilities. Paramount to our growth at the BWH is improved OR access and efficiency. This would include discussions of earlier OR start times, decreased turnover times, staggered rooms, further separation of inpatient and outpatient services, and increased OR allocation to Orthopaedics. Operating room access and efficiency are critical to the satisfaction and retention of our clinical staff.

In addition to space considerations, the Department faces a tremendous challenge over the coming year in adopting new programs and capabilities that will more fully automate management of the clinical practice. For example, the longitudinal medical record (LMR) developed by the Partners Information Systems is scheduled to be implemented in orthopaedics at the BWH later in 2003. This capability has the potential to significantly improve surgeons' communication with primary care providers and care for patients in multiple, Partners locations. The Department also expects to have radiographic images and reports online in the patient care rooms and physician offices. This capability also promises to have a tremendous impact on physician satisfaction and efficiency. The conversion from a paper-driven clinical practice to a more automated practice will be challenging for management and the staff.

CONTINUED PARTNERSHIP WITH HOSPITAL LEADERSHIP

One of the major beneficial changes over the past five years has been an increased dialog and association between the Orthopaedic Department and the Institution. Continued dialog, financial support for program development, an expanded role in marketing and commitment of the development office to encourage funding of musculoskeletal programs, are all critical issues for our continued academic success.

CONCLUSION

I am honored to present this overview and summary of the Orthopaedic Program at the BWH. I am grateful to the BWH and the Harvard Medical School for providing a heuristic environment in which to fulfill our mission of excellence in patient care, education, and research. I am confident that with continued support and collaboration we will meet our challenges and maintain our excellence commensurate with our colleagues at the BWH and Harvard Medical School.

In closing my 2003 Chairman's Corner, I would like to update you on the Department's faculty alumni and share with you the highlights from our teaching programs over the past year.

FACULTY NEWS

I am pleased to report that all of the “old guard” is doing well. Unfortunately, they are doing so well that we don’t see them very often! We do get to see Bob Poss in his role at the JBJS. Bob continues to be very supportive of the Brigham, attending rounds, helping Jim Heckman with a very successful residents’ Journal Club and “popping by” now and again. Clem Sledge is still in Marblehead but spends more time in Maine. Bill Thomas divides his time between Brookline, Martha’s Vineyard and Florida while Fred Ewald is spending an increasing amount of time in Colorado. As I am now third in the chronological pecking order behind Barry Simmons and Dick Scott, I am keeping an even closer eye on the “retirement pathway”.

FELLOWS

The arthroplasty fellowship program at the Brigham continues to grow. We have once again been blessed with three superb total joint arthroplasty fellows this year. Dr. Nigel Azer comes from the University of Virginia and will be joining his father in practice in the Washington, D.C. area. Nigel is a true gentleman and an excellent surgeon, and we are all proud to have him as one of our graduates. Dr. Greg Erens is a product of the Harvard program, was Chief Residency at the Brigham and has taken an academic position at Emory University in a program under the direction of the new Chairman, Dr. Jim Roberson. Greg will take a tremendous skill set with him and my prediction is that he will be an academic leader in the field of arthroplasty. Dr. Rob Korbly is another one of our excellent Canadian fellows who is planning to return to Canada and my prediction is that he will be as successful as many of our other fellows who have returned as orthopedic leaders in our northern neighbor.

Our foot and ankle fellows this past year were Drs. Kevin Nagamani and David Keblish. Kevin, who hails from Kansas City, spent six months with Drs. Wilson, Chiodo and Ioli and has joined a practice group in St. Louis. Our 12-month fellow David Keblish came to us from the U.S. Navy. David, who is the son of our good friend Peter Keblish from Allentown PA, has done a spectacular job integrating in all facets of our practice. He does have a 2-year commitment in the Navy and is a guaranteed success in whatever path he chooses.

Our hand and upper extremity fellows both come from New York; Dr. Dan Polatsch trained at Hospital for Special Surgery and will join a practice group back in New York. Dr. Roger Cornwall trained at Mt. Sinai and will be headed to a career in academic orthopedics for which he is well prepared. Working with Drs. Simmons, Koris, Blazar and Peter Waters at Children’s Hospital, our fellows have maintained this group’s high tradition of excellence.

Dr. David Wimberly, having recently completed his Chief Residency in the Harvard Program, has spent six months as a Spine fellow and will be continuing his training with Dr. Alex Vaccaro in Philadelphia.

We have also been fortunate to have a group of outstanding International Arthroplasty Fellows (names?) who were great

additions to our clinical program and also very productive writing papers during their tenure.

MEDICAL STUDENT TEACHING

The Brigham, Children’s, BIDMC and MGH have reorganized their third-year orthopaedic surgery rotations as part of the surgical clerkship. Dr. John Wright continues to do an excellent job of managing the medical students’ experience with faculty members in our ambulatory settings. Additionally, the 4th year elective continues to be popular both with the Harvard students and visiting students (usually potential Harvard residents). We also continue to run a program for the HST students as well as the new pathway students in patient doctor II and Harvard Medical School. We remain committed to working with the medical school to improve our student teaching at all levels.

RESIDENT EDUCATION

First, I would like to acknowledge awards presented at the Resident Graduation Dinner last June. I am pleased to report that Dr. Donald Bae received the William Thomas Award for 2002. As you know, this award recognizes the Senior Resident who “best exemplifies excellence in Orthopaedics, devotion to patient care, collegiality and teamwork”. I would also like to acknowledge Mark Vrahas as the recipient of the 2002 Golden Apple Award for outstanding teaching of Harvard orthopaedic residents. Mark has done an outstanding job establishing the Partners Orthopaedic Trauma Service between the BWH and MGH, and transforming the trauma service to a true specialty service. His hard work and enthusiasm have improved the quality of teaching our residents receive in orthopaedic trauma.

The Executive Committee’s decision to eliminate the six-month chief residency, coupled with the ACGME’s new work hour requirements will have a significant impact on our residency program in the coming year. As you may know, the six-month research block was eliminated beginning last year. These changes effectively bring the Harvard Program in line with most other residencies to be a 5-year program. Many of us have felt that the six-month Chief residency provided a “warm lagoon” where one could gain independence in decision making as an attending, yet be protected by the academic environment. Unfortunately, increasing fiscal pressures with large medical school debts caused the residents to feel that this was more of a service obligation than an educational opportunity. While many of you will lament the cessation of the Chief Residency Program, I can honestly tell you that this decision was based on a thorough review with faculty and residents at all levels and ultimately, was made with your program’s best interests in mind. I can also tell you that we have anticipated and planned over the past three years for the impact of this change. This decision, coupled with the 80-hour resident workweek mandate, poses a significant strain on both our manpower and educational opportunities. At first blush there is a tendency to say “when we were residents, we walked uphill to the hospital both ways in the snow twelve months of the year”. Times are different but I can tell you that the residency program is thriving, our match results this year were superb and you would all

be proud of the quality of residents that have graduated from the program.

At the Brigham we have recently renovated both the Lowell Library and the resident's area on A-Main (see photographs). The resident's office and educational area is directly across from my office and has workstations, computers and access to both hard copy and audiovisual material. Our goal at the Brigham, like each of the hospitals in our program, is to make our institution the best place for students, residents and fellows, to provide innovative ways in providing an excellent education experience and to give graduated responsibility within the confines of a 5-year program.

In the midst of all this change, I want to acknowledge the one thing that will not change in the coming year. As a member of the Executive Committee for the residency program, I am pleased that Jim Herndon will remain an integral part of the residency training program as he steps down as Chairman of the Partners Department of Orthopaedic Surgery at the end of this year. Moreover, Jim brings a tremendous skill set developed as AAOS President. With Jim's leadership, the Chiefs have forged a working relationship over these past five years that has greatly benefited the educational mission in each of our institutions. We welcome his continued involvement in our program as we move forward to tackle the challenges ahead.

Department of Orthopaedic Surgery, Brigham and Women's Hospital

Thomas S. Thornhill, MD

John B. and Buckminster Brown Professor of Orthopaedic Surgery, Harvard Medical School
Orthopaedist-in-Chief, Department of Orthopaedic Surgery, Brigham and Women's Hospital

Clinical Faculty

Richard Scott, MD

Professor of Orthopaedic Surgery, Harvard Medical School

Barry P. Simmons, MD

Associate Clinical Professor of Orthopaedic Surgery, Harvard Medical School
Director, Hand and Upper Extremity Service

Gregory W. Brick, MD

Assistant Clinical Professor of Orthopaedic Surgery, Harvard Medical School (1985-1996)

Charles H. Brown, Jr., MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School
Director, Sports Medicine Service

Daniel M. Estok, II., MD

Instructor in Orthopaedic Surgery, Harvard Medical School

James H. Herndon MD, MBA

Chairman, Partners Department of Orthopaedics
Partners Healthcare Professor of Orthopedic Surgery, Harvard Medical School

Jon J.P. Warner, MD

Chief, Shoulder Service
Associate Professor of Orthopedic Surgery, Harvard Medical School

Mark J. Koris, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School

Scott D. Martin, MD

Instructor in Orthopaedic Surgery, Harvard Medical School

Tamara L. Martin, MD

Instructor in Orthopaedic Surgery, Harvard Medical School

Tom Minas, MD

Associate Professor of Orthopaedic Surgery, Harvard Medical School

Richard M. Ozuna, MD

Instructor in Orthopaedic Surgery, Harvard Medical School
Director, Spine Service

John E. Ready, MD

Instructor in Orthopaedic Surgery, Harvard Medical School
Director, Tumor Service

Michael G. Wilson, MD

Assistant Professor in Orthopaedic Surgery, Harvard Medical School
Director, Brigham Orthopaedic Department, Faulkner Hospital
Director, Foot and Ankle Service

R. John Wright, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School
Resident Coordinator, Brigham and Women's Hospital
Director, Orthopaedic Trauma Service
Clinical Faculty-Harvard Vanguard Medical Associates

Robert Chernack, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School

John A.K. Davies, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School

Jerry L. Knirk, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School

Robert E. Miegel, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School

Mark E. Steiner, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School

Craig R. Stirrat, MD

Clinical Instructor in Orthopaedic Surgery, Harvard Medical School

Wolfgang Fitz, MD

Instructor in Orthopaedic Surgery, Harvard Medical School

Chris Chiodo, MD

Instructor in Orthopaedic Surgery, Harvard Medical School

James P. Ioli, MD

Instructor in Orthopaedic Surgery, Harvard Medical School
Chief of Podiatry

John McLoughlin, DPM

Clinical Instructor in Orthopaedic Surgery

Zacharia Isaac, MD

Instructor in Physical Medicine and Rehabilitation, Harvard Medical School

Phil Blazar, MD

Instructor in Orthopaedic Surgery, Harvard Medical School

Peter Millett, MD

Instructor in Orthopaedic Surgery, Harvard Medical School

R. Malcolm Smith, MD

Assistant Professor of Orthopaedic Surgery, Harvard Medical School
Associate Chief, Partners Orthopaedic Trauma Services

Mark Vrahas, MD

Assistant Professor of Orthopaedic Surgery, Harvard Medical School
Chief, Partners Orthopaedic Trauma Services

Fellows

Hand

Daniel Polatsch, MD
Roger Cornwall, MD

Arthroplasty

Nigel Azer, MD
Greg Erens, MD
Robert Korbly, MD

Foot & Ankle

David Keblish, MD
Kevin Nagamani MD

Spine

David Wimberley, MD

Basic Science Faculty

Myron Spector, PhD

Professor of Orthopedic Surgery, Harvard Medical School
Director, Orthopedic Research Laboratory, Brigham and Women's Hospital

Julie Glowacki, PhD

Professor of Orthopedic Surgery, Harvard Medical School
Director, Skeletal Biology, Brigham and Women's Hospital

Hu-Ping Hsu, MD

Instructor in Orthopedic Surgery, Harvard Medical School

Sehichi Mizuno, PhD

Instructor in Orthopedic Surgery, Harvard Medical School

Anuj Bellare, PhD

Research Fellow in Orthopedic Surgery, Harvard Medical School

Sonya Shortkroff, PhD

Instructor in Orthopedic Surgery, Harvard Medical School

Karen Yates, PhD

Instructor in Orthopaedic Surgery, Harvard Medical School

Ilkka Kiviranta, PhD, MD

Visiting Scientist in Orthopaedic Surgery, Harvard Medical School

Christopher H. Evans, PhD

Robert W. Lovett Professor of Orthopaedic Surgery, Harvard Medical School

Steven C. Ghivizzani, PhD

Assistant Professor of Orthopaedic Surgery, Harvard Medical School

Elvire Gouze, PhD

Instructor of Orthopaedic Surgery, Harvard Medical School

Debra L. Stamper, PhD

Instructor of Orthopaedic Surgery, Harvard Medical School

Mark E. Brezinski, MD, PhD

Associate Professor of Orthopaedic Surgery, Harvard Medical School

David J. Zaleske MD

Visiting Scientist