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## MGH SURGICAL SOCIETY RECEPTION

Monday, October 14th

6 to 8 p.m.

Wardman Park

Marriott

Washington D.C.

# The MASSACHUSETTS GENERAL HOSPITAL SURGICAL SOCIETY

## Newsletter

Spring 2013

Volume 14, Issue 1

### Message from the Chief



#### *Leadership, Mentorship and Strategic Planning*

Everybody says time flies, but I find it hard to believe that on May 1st I completed my second year in the “best surgical job in America.” Much of my time has been spent learning the system, the people, and the challenges/opportunities that the Department and MGH faces. I certainly take no credit for the many accomplishments of the Department over the last two years, yet as we move into year three, the time is right to share a few of the initiatives that the Department has in store over the next few months.

First, with respect to leadership and mentorship, it is my opinion, the MGH Department of Surgery should provide the leaders of American Surgery. Examples of success in just the short time that I have been here include David Rattner as President of the Society for Surgery of the Alimentary Tract, Doug Mathisen as President of the Society of Thoracic Surgery and Rich Cambria as President of the Society of Vascular Surgery - all great examples of surgical leadership. Add this to the Dr. Warshaw’s leadership in the American College of Surgeons, the Society for Surgery of the Alimentary Tract and the American Board of Surgery and of course Dr. Jerry Austen as President of the American College of Surgeons, the American Surgical Association, and multiple of Cardiac Surgery organizations, the MGH Department of Surgery has a rich tradition in impacting American Surgery. Without a doubt we have young surgeons in the pipeline, residents, fellows and junior faculty, who can follow in these footsteps as future leaders. But these things just don’t happen by chance. Our young people must be mentored, coached and pushed to the highest levels of visibility both to support their academic progression at the MGH and Harvard Medical School, but also within national, regional, and specialty societies. This is a big job requiring mentors with both expertise and dedication to the mentoring process. Individuals who believe that the sun shines brighter when reflected off of others. Fortunately we have a great group of division chiefs, who do an outstanding job of mentoring their junior faculty with their clinical practice, research, and teaching responsibilities. Our residents and fellows have also benefitted from advice from frequent “curbside or more” meetings with our faculty and program directors. Even considering all this I still think we can do better. The Department has therefore established a new Mentorship Committee lead by Dr. Rich Hodin in his new position as Chief of Academic Affairs. Members include Jim Allan, Jay Austen, Ben Cosimi, Marc de Moya, Pat Donahoe, Carlos Fernández-del Castillo, Allan Goldstein, Joren Madsen, Sareh Parangi, Barbara Smith, Mehmet Toner, Gus Vlahakes, and Mike Watkins. It is hoped that this group will supplement the work of the Division Chiefs and myself with a particular focus on junior clinical and research faculty, residents and fellows. To jump-start this new committee, Dr. Layton “Bing” Rikkers, former Chair of Surgery and current Professor Emeritus and the Director of Faculty Mentorship at the University of Wisconsin, as well as current President of the American Surgical Association, was a visiting professor in May. Dr. Rikkers is well known for his role in leading the outstanding “Surgeons as Leaders” Course at the American College of Surgeons over the last decade. His visit was a great source of information for both the Committee and our faculty and residents.

The importance of leadership is emphasized nicely by the essay in this issue written by one of our junior surgical residents, Jordan Bohnen. In this essay, Jordan has defined the importance of leadership development to provide the clinical leaders to meet the challenges of delivery of high quality, cost efficient patient care in the ever changing landscape of healthcare in this country. Hopefully our senior leaders and our new mentoring committee working with bright and talented young people in the program, our mission to provide the future leaders of American Surgery will be accomplished.

In terms of strategic planning, no institution or department can ever live on its laurels of past accomplishments. Therefore the MGH and the Department of Surgery have both entered a strategic planning process hoping to work together to focus on improving our performance in all of our clinical missions, clinical care, research (both clinical and basic science), education (at all levels) and community service. I will not dwell on the details as many are still in the development phase, but it goes without saying that we are working closely with our hospital partners to meet the goals of keeping both the MGH and the Department of Surgery at the highest level of achievement.

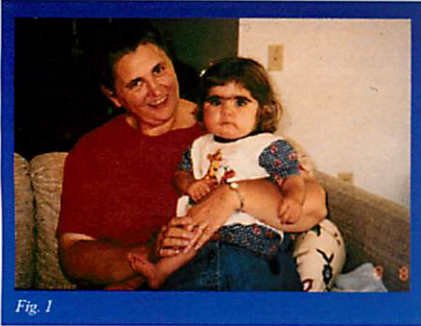
*(Lillemoe continued on page 14)*



## HISTORY OF TRANSPLANTATION AT THE MGH by Paul S. Russell

(Adapted from a Grand Rounds Presentation, April 12, 2012)

This article was prompted by a kind invitation from Keith Lillemoe to recount the story of how transplantation got started at the MGH at one of our regular Grand Rounds. Bill Daggett has generously asked me to reproduce a summary of that here including some of the images I showed.



I hope you will forgive me for being pretty autobiographical, but it is easier for me to describe what I remember best. One example of the great enlightenment and progress that has occurred in this field in one professional lifetime is by showing a photograph of two people, a woman and her niece (*Fig. 1*), who visited me in my summer place in rural Michigan a few years ago. They just came by unexpectedly because they had learned I was interested in the subject of transplantation and they happened to live on a farm in the area. The woman had a new liver and the little girl a new heart. I was truly moved to see them, and I hope I can explain why in this talk.

When I was a surgical intern at the MGH in 1948 I had never heard of the possibility of replacing organs, and I didn't know anyone else who had. If I had been told that we would have an entire activity at our hospital devoted to transplanting several organs, and even extremities, it would have seemed as impossible to me as if someone were to say to me today we will have a

service where the effects of aging are routinely fixed with little comment. It isn't that aging is not a problem it is because there are no useful ideas of what to do about it. Well, how did I become interested in the biology of tissue transplantation? In 1953 when I returned to the MGH from military service during the Korean War I was happy to be back on the familiar residency learning curve. Still, I had begun to think more about the future and especially to wonder what place research might play for me. I had done quite a lot of laboratory research at the University of Chicago during medical school, mostly at night and over weekends, but even though that work in endocrinology had been exciting and fun I was thirsty to find a new area to explore. One night, during a slow period when I was free to read in the Treadwell Library, I happened to come across a paper (Billingham RE, Bren L, Medawar PB. Actively Acquired Tolerance of Foreign Cells. *Nature*, 1953, 172) describing a most remarkable finding.

Before I describe this discovery I want to explain why it was so remarkable. The true fate of transplants of living cells and tissues transferred to other members of the same species had been a very confused subject for many years. Peter Medawar, the lead member of the team that had done the tolerance experiment, and the man who was to become my teacher, was a professor of Zoology at University College in London. Actually among the best-planned experiments elucidating the true situation were those of Medawar himself. Medawar had done several decisive experiments while an obscure young faculty member at Oxford during the war. He transplanted several discs of full thickness skin from one rabbit to a wound on the chest wall of another. Invariably these grafts were destroyed in 8 to 10 days by a powerful inflammatory reaction while grafts from the same individual that was the recipient (autografts) survived permanently. Perhaps even more importantly he had found that if a "second set" of grafts were transplanted from the foreign donor these were destroyed 2 to 3 days more rapidly than before whereas simultaneous grafts from a third party survived for the usual time expected for "first set" grafts. This finding of an accelerated response on second contact and of specificity of the response suggested that this reaction might be some form of an immune reaction.

In those days immunology was the study of "humoral" immunity to be found in the serum. It was not understood that cells could mount specific reactions. When rejecting tissues or organs were examined, however, a dense population of infiltrating cells, mostly mononuclear cells, was found. We had no idea then of the existence of T or B lymphocytes and no inkling of the great discoveries that were to come regarding further delineation of cell sub-sets or of their complex interaction by signaling cytokines that is still developing so impressively.

If a recipient was indeed immunized, where was the immunity? Efforts by several people, including Medawar's close colleagues, who later became my friends and colleagues as well, failed in repeated attempts to find any evidence of humoral immunity by the standard process of transferring serum from an "immunized" recipient to a normal one, followed by an appraisal of survival of a graft from the immunizing donor.

It should be mentioned that a few highly skilled serologists, especially Peter Gorer at Guy's Hospital, reported detecting humoral antibodies in mice that had rejected tumor transplants.

Understanding of cellular immunity has an interesting history that I cannot recount now, but for transplantation immunity one of the best experiments that threw light on the subject was carried out by Avrion Mitchison working for a while at the Jackson Laboratory in Bar Harbor, Maine. Avrion, later to become a good friend, is a brilliant person, and incidentally, a direct descendent of Charles Darwin. He studied mice that had rejected transplanted tumors from members of another inbred strain. (Inbred strains, almost entirely of mice had been created in a few laboratories in the course of experiments on transplanted tumors and much had been learned about transplantation this way. Indeed, Medawar said that these experiments were thought to be using transplantation to learn about cancer whereas they really were using cancer to study transplantation). Anyway, Mitchison found that if he transferred cells from the regional lymph nodes of an animal that had rejected a tumor the same tumor would not grow when transplanted to this recipient. He called this "adoptive immunity". Incidentally, it was found later, notably by my colleague Henry Winn here at the MGH, that injections of a high titer serum from an immunized recipient could indeed transfer immunity in an impressive way, and we now have much experience with the importance of humoral as well as cellular factors to the fate of transplanted organs in our patients. Henry's experiments showed the effect within hours of transferred serum to immunosuppressed mice bearing surviving rat skin grafts. Rejection from humoral factors often looks quite different from the usual, mainly cell-mediated, process.

Now, back to my story. I had read about what I said was a remarkable discovery, that of immunological tolerance. The discovery followed



on some seemingly quite unrelated experiments by Medawar and his colleague, Rupert Billingham, with cattle twins. Medawar was asked by a colleague in Birmingham, where he was then working, to help him distinguish between fraternal and identical cattle twins. "Quite easy", he said, "all one has to do it to exchange skin grafts between them. Those to identical twins will survive and the others will not". When he tested this he found the surprising result that ALL skin grafts survived. It was soon realized that this was a consequence of the fact that the placentae of cattle twins tend to implant next to one another on the uterine wall. Their circulations then fuse so that the embryos transfuse one another exposing each to the cells of the opposite twin. After birth it was found that cells in the blood of such cattle were of two types representing both twins. It became clear that they had become tolerant of one another. The experiment I had read about consisted of injecting mice of one inbred strain in utero with cells derived from another strain to reproduce this effect. This could also be done successfully just after birth.

When such mice are later tested by their response to grafted skin from the same strain as the injected cells these grafts lived for prolonged periods or even indefinitely. Their lympho-reticular systems are stable mixtures making them "chimaeras". Now I hope you will realize why I have described this discovery as so significant.

When I read about it I immediately wrote to Medawar asking to join him. This was 1953. Medawar was in his late thirties, had a very small laboratory in the Zoology Department of University College, and was reluctant to have a young, probably quite ignorant surgeon, along with the three other people already with him. I was finally able to convince him to take me. So my new wife, and new baby in the making, went off to London in the autumn of 1954. I had a wonderful and formative time for the next year and a half. I studied wound healing with Billingham and adrenal transplantation directly with Medawar. We had some nice results.

When we returned home I had a final spell of residency to complete as Resident (one would now say Chief Resident) on the East Service in 1956. After that I was invited by Edward Churchill to remain on the staff. I did this, beginning a general surgical practice and starting up a small research laboratory to study transplantation biology. With a bright medical student, called Ruben Gittes, we did experiments on parathyroid transplantation. Amongst other things we investigated the importance of recipient sites to the survival of these tiny grafts in parathyroidectomized rats.

Parathyroids transplanted to the anterior chamber of the eye or to the brain survived for many weeks whereas skin grafts in the usual location did not. The question of "privileged sites", natural and man-made, continues to attract attention.

At that time I also developed a special clinical interest in acute leukemia in children that resulted in some of the very earliest bone marrow transplants anywhere. This work was done mainly with a pediatric hematologist, Joseph McGovern. Our approach depended upon the fact that many children with this severe form of leukemia would often undergo transient, but remarkably complete, temporary remission of their disease with normal-looking peripheral blood and bone marrow following the chemotherapy then available. The plan was to remove bone marrow from these children while in remission and then store it in the frozen state pending recurrence of leukemia. We could then use the stored marrow to rescue such patients from treatment with otherwise lethal whole body irradiation. We did this with several children, dreadfully sick by the time of their recurrences, and succeeded in reversing their disease for a number of months in several cases.

Some of these patients received marrow from their mothers when the stored marrow failed to engraft and here we began to see evidence of immune reactivity of foreign marrow cells against their recipient in a "graft versus host" effect. Interestingly, my London colleagues had been among the first to describe this kind of reaction in mice a few years before. They found that in certain mouse strain combinations the injection of lymphoid cells in early life to obtain tolerance also resulted in a lethal condition they termed "runt disease".

I had a busy and productive couple of years in New York (1960-1962) and my growing family got along well there. To my surprise I was soon invited to return to the MGH to follow E. D. Churchill. The clinical world of transplantation was just about to wake up. Although I heard next to nothing about the work at the Brigham I was aware that they had transplanted several kidneys successfully between identical twins while I was in England but that efforts to transplant kidneys between others, including ordinary siblings, failed in spite of what little in the way of immunosuppression was then available. This consisted mostly of whole body irradiation and corticosteroid treatment. At that time there were perhaps half a dozen academic centers in the entire world that had any interest in the seemingly unpromising field of clinical organ transplantation.

The situation changed when George Hitchings and Trudie Elion at the Burroughs Wellcome Company synthesized a relatively non-toxic imidazole derivative of 6-mercaptopurine that they named Imuran. They gave their drug this name because in screening tests in mice it proved to suppress immune reactions better than several of its structural cousins. George had worked at the MGH in the Huntington Lab and I had kept in touch with him. Knowing that people at the Brigham had been doing some work with transplanted kidneys in dogs he asked them to try Imuran there. At that time Roy Calne, a young English surgeon, had arrived in Boston for a fellowship with Joe Murray. He tested Imuran in dogs and found very promising results. They also began clinical trials that I watched in detail. Here was a chemical immunosuppressant, a much more flexible modality than irradiation. It was something we could work with. This was our first sensible opportunity to begin organ transplantation between incompatible individuals. I watched Joe Murray do a couple of transplants and in early 1963 did our first kidney transplant with Wyland Leadbetter, our Chief of Urology, helping.

We learned a lot from those early patients. Each one was a kind of museum piece and each one was bravely willing to step into the unknown with us. Our first patients were in very advanced renal failure as hemodialysis was not available at the MGH. John Merrill at the Brigham had rigged up the large and complicated rotating drum device pioneered by Willem Kolff in Holland, and he was able to dialyze the blood of a few patients. Our medical service had sent some patients there who were thought to have temporary renal failure. But we needed this support for our patients so we set up hemodialysis as part of transplantation. Because of the exploratory nature of transplantation at that time and the fact that no third party coverage existed for it I arranged for our entire clinical program, including nursing and dialysis treatments and even the building required to construct a small critical care unit on White 12 (now White 13) would be paid for by a large grant from the NIH. Kidney transplant survival to one year succeeded in only about 20% of patients at first. One remarkable thing to me that we soon

*(Russell continued on page 12)*



## In Memoriam: John Francis Burke, M.D.

by Ronald Tompkins, M.D. '85



John Francis Burke was born on July 22, 1922 and died on November 2, 2011. Between birth and death, “Dr. Burke”, as everyone called him, was an engineering student, army air force pilot, husband, surgeon, father and great grandfather, chief of staff, educator, innovator, and philosopher. Just days before Dr. Burke’s death from pancreatic cancer, I accepted an award for Dr. Burke who was honored for

60 years of service at Massachusetts General Hospital (MGH) during the annual Ether Day celebration to mark MGH milestones. Dr. Burke has been eulogized in several international publications, including *The New York Times*, the *British Medical Journal*, and the *UK Telegraph*, among others. Such are testaments to the life’s work of this man, surgeon, and scientist.

Born the oldest of three children, John “Jack” Burke grew up in Chicago and attended the University of Illinois as an undergraduate studying chemical engineering. Agnes, his dear wife of several decades, related the story of how he joined the U.S. Army Air Forces the day after the bombing of Pearl Harbor. Bill Daggett fondly recalls that Jack often regaled his friends with stories about the mechanical problems of the twin engine P-38, which he said was a pleasure to fly, but had a multitude of engine problems, which grounded it frequently. He attended Harvard Medical School after serving his combat missions, receiving his medical degree in 1951. From that point on, Harvard and MGH became his “professional family”. He went on to become Professor of Surgery at Harvard and an international expert in burn care and research. His publication record stands at over 400 original articles in refereed journals, 100 chapters in books or monographs, and 11 books. As a distinguished professor from a major academic medical center, he served as President of several medical and scientific organizations and received numerous awards and honors.

As Dr. Burke grew his “professional family”, so did he grow his personal one. Dr. and Mrs. Burke raised three sons and a daughter and at the time of his death, he was survived by eight grandchildren and one great grandchild. Both families experienced his fondness for his New Hampshire farmhouse with an appendage known affectionately as “The Barn” and his admonition, “Don’t take any wooden nickels.”

Dr. Burke’s contributions to the clinical practice of medicine were many. Early in his research career, his work with Professor Sir Ashley A. Miles was designed to consider the importance to outcome of timing antibiotic administration with respect to the induction of an experimental infection. The clear message was that antibiotics were much more effective if given early. This finding demonstrated how the use of prophylactic antibiotics could prevent surgical wound infection. This work was begun during his one-year research fellowship at the Lister Institute of

Preventive Medicine in London and continued during his early years on the surgical faculty of Harvard and MGH.

After Dr. Burke set up an independent laboratory, his interests expanded into the field of inflammation and methods of burn

treatment. Patients with very extensive burns offered poor sources for autologous skin grafts so it was natural to explore a variety of alternative sources, especially for early burn coverage after excision. Allograft preserved in the frozen state in a “skin bank” that Dr. Burke and colleagues established proved to be one useful source. Xenograft was also applied with success in certain circumstances although both kinds of grafts required later replacement. While Chief of Staff from 1969-1980 at the Shriners Burns Institute in Boston (Shriners Hospitals for Children – Boston), Dr. Burke reinvigorated the concept of and demonstrated improved patient outcomes from early excision of deep burns.

In 1969, Dr. Burke and his MGH research team, in collaboration with Dr. Ioannis Yannas from the department of mechanical engineering at Massachusetts Institute of Technology (MIT), began their research efforts to develop an “artificial skin” to replace lost or damaged tissue after severe burn injury. Dr. Burke would go on to become first a Lecturer, then a Visiting Professor at MIT while the MGH-MIT team struggled with identifying a flexible material for “replacing lost anatomic integrity and restoring function”. On April 24, 1981, *The New York Times* published an article on this innovative and life-saving treatment from Dr. Burke’s report of 10 burn patients at the American Surgical Association meeting in Chicago on the prior day. During his Presidential Address in 1982 at the Fifteenth Annual American Burn Association Meeting, which was subsequently published in the *Journal of Trauma*, Dr. Burke chronicled the experiences with the “artificial skin” in 36 burn patients.

While Chief of the MGH Trauma Service from 1980 to 1990, Dr. Burke had cared for and treated thousands of burn patients from all walks of life. Among several high profile personalities who have publicly acknowledged the skills, care, and compassion of Dr. Burke and MGH Burn Center are media mogul Sumner M. Redstone and J.W. (Bill) Marriott, Chairman and CEO of Marriott International. Mr. Redstone established the Sumner M. Redstone Burn Center in 1974 and went on to donate \$35 million in 2007 to “renew my longstanding support of the innovative research of Dr. John Burke and the heroic work of the Burn Center at Mass General Hospital.” Mr. Marriott’s charitable donations to MGH established the J.F. Burke, M.D./Bill Marriott Fellowship for clinical research in burns and trauma at MGH and contributed to the construction of the full-weather heliport on the roof of the Blake Building. Just recently, the Marriott Foundation has honored him with the MGH Chair, John F. Burke Professor of Surgery at the MGH. This leaves both an HMS chair and an MGH chair named in his honor.

Most everyone at MGH believed that his true passion was clinical research and education. The two historical NIH programs awarded to Dr. Burke in the 1970’s continue today to serve as the backbone of the MGH Burns Division research activities now under the leadership of Dr. Tompkins beginning in 1990. The Burn Research Center at MGH was the first-in-the-nation P50 award from the National Institute of General Medical Sciences (NIGMS). Since its first year of funding in 1974, the Center has successfully integrated basic laboratory observations and principles into the clinical setting and has fostered multidisciplinary interactions within the MGH research and clinical communities and beyond. This Center was recently competitively renewed in its 38th year for another five years.



In association with the Burn Research Center, Dr. Burke was awarded a NIGMS T32 Burn Research Training Grant, which has also been continuously funded since 1975. Within this program, Dr. Burke trained many surgical fellows from foreign countries. Among them was Australian surgeon Dr. Peter J. Morris who came from the University of Melbourne. His academic work in surgical immunology at MGH and Harvard Medical School resulted in his appointment as Nuffield Professor and Chair of Surgery at the University of Oxford. Knighted by the Queen in 1996, Sir Peter John Morris was elected as President of The Royal College of Surgeons of England in 2001.

More than 15 fellows from Keio University, one of the oldest universities in Japan, had been trained under Dr. Burke. A Japanese surgeon, Naoki Aikawa has had a long adoration for Harvard from his early years in reading *The Harvard Prize Book* (Harvard University Press, 1957), which was awarded to him by the Harvard Club of Japan. After his fellowship under Dr. Burke, Professor Aikawa was appointed in Japan as founding Chair of Emergency & Critical Care and later to General Director of the Keio University Hospital, and elected as President of the International Society of Burn Injuries. He is working as Medical Advisor to the American Embassy in Tokyo, having served for Ambassadors Walter Mondale and Howard Baker, and covers medical contingencies during the visits of U.S. presidents. Including Professor Aikawa, five of Dr. Burke's Keio fellows have become chairs and professors at Japanese medical schools. For his contributions in teaching and training, Dr. Burke was elected as an Honorary Member of the Japan Surgical Society.

Dr. Yong-Ming Yu, a basic scientist and clinical investigator at MGH who worked with Dr. Burke for over three decades said, "I deeply feel that he was a great mentor to me and many others. He is one of the few in our time whose lifelong contributions are connected with such giant advancement of a field of medical science in the past 50 years."

Although the primary research and training activities remain within the Burn Center, the training faculty and research opportunities have expanded over the last decade or so to include bioengineering applications to burns and trauma included in the MGH Center for Engineering in Medicine. The bioengineering efforts grew from the NIH-sponsored Burn Center and Training Program and share multiple faculty trainers with cross-appointments at one or more institutions: MGH, Shriners Hospital, Harvard Medical School, and MIT.

Dr. Burke spent his entire career dedicated to the training and education of those who would be following in his footsteps. During his Presidential Address before the 71st Annual Meeting of the New England Surgical Society in 1990, Dr. Burke asked the question of who is responsible for maintaining progress in medicine. In his address published in the *Archives of Surgery*, Dr. Burke said, "The answer is straightforward. Education is our task. We know what is possible, and where there is doubt, we surely are the best judges of the probability of cure. We know that progress, if maintained, is constant so that the base of public information must be constantly updated through teaching. If we are objective in this teaching task and carefully document and update without exaggeration or unsubstantiated projection, clearly describing what medicine can do and what may be accomplished by further investigation, we will not only have answered our questions, we will have accepted our responsibility."

For the 2011 MGH Ether Day ceremony, I was asked what I thought Dr. Burke's proudest accomplish might be. "I think that he is

most proud of his leadership in clinical research and he always was inspiring others to be curious and to conduct research to make the care better for the future. His time and contributions at Mass General are, I'm sure, right up there with his loyalty to his family in terms of his life's contributions."

From Bill Marriott's online personal blog on February 13, 2012: "I will miss my friend and doctor, Jack Burke. He was a great blessing in my life."

He is survived by his wife Agnes (Goldman), daughter Annie, and sons John and Peter. His son Andrew, a history teacher, preceded him in death of Hodgkin's lymphoma in 1987.

Dr. Burke died on November 2, 2011. But, his personal and professional legacies will live on in the people, practices, and programs he shaped along the way.

*(Editor's note: Ron Tompkins, a summa graduate in chemistry and honors MD graduate, both from Tulane University, trained in surgery at MGH finishing as East Resident; he then joined the surgical staff at MGH and the faculty of HMS. He worked closely with Jack Burke in burns research, and serves as Chief of Burns at MGH. Previously Chief of Staff, Shriners Hospitals for Children, Boston and past president of the American Burns Association, Ron has been a prodigious investigator in burns research and trained hundreds of fellows and clinicians in this field. Recipient of numerous awards for his research and teaching, Ron has served as John Francis Burke Professor of Surgery at HMS, and currently serves as the Sumner M. Redstone Professor of Surgery at HMS.) ♦*

## 2013 FERGUSON-OTTINGER LECTURE



Charlie Ferguson was selected by the senior residents to deliver the second annual lecture for the Ferguson-Ottinger Fund for Surgical Residents. Charlie and his wife Stacy had dinner with the senior residents and spent several additional hours with all of the residents. We were also honored that Les Ottinger was able to participate in much of the day. At a dinner with friends and former colleagues, celebrating the day's activities, Charlie reflected on the motivation behind establishing the Fund – to enhance the educational experience of the surgical residents – and commented that his dream is to see the Fund continue to grow so that additional assistance can be made available to the residents. He urged others to take this charge. If interested in learning more on how to get involved, do not hesitate to contact Committee Chair Dave Rattner, or John Mullen or Keith Lillemoe.





**DESTINATIONS  
CLASS OF 2013**

*(back row l to r)*

**Leopoldo Fernandez, MD**  
*Surgical Oncology  
Virginia Commonwealth University*

**David Fink, MD**  
*Trauma and Acute Care  
Massachusetts General Hospital*

**Jeffrey Lee, MD**  
*Plastic Surgery  
Massachusetts General Hospital*

*(front row l to r)*

**Lars Stangenberg, MD**  
*Vascular Surgery  
Beth Israel Deaconess Hospital*

**Keith Lillemoe, MD**

**Melissa Hull, MD**  
*Doctors without Borders*

**Angela Moss, MD**  
*Colorectal  
Lahey Clinic, Burlington*

WELCOME INTERNS



**Katherine Albutt, MD**  
HMS



**Yanik Bababekov, MD**  
Tufts



**Raghu Chivukula, MD**  
Johns Hopkins



**Sonia Cohen, MD**  
HMS



**Derek Erstad, MD**  
HMS



**Daniel Hashimoto, MD**  
University of Pennsylvania



**Rajshri Mainthia, MD**  
Vanderbilt University



**Thomas O'Donnell, MD**  
Weill Cornell



**Sahael Stapleton, MD**  
Johns Hopkins





As a senior in college I enrolled in a course titled: The Quality of Healthcare in America. In the first class, my professor, Dr. Donald Berwick, a well known figure in the field of healthcare quality improvement, stood up and asked: “does anyone here know someone whose experiences with the healthcare system were suboptimal?” One by one my classmates shared personal stories, painting a dichotomous picture of our healthcare system in its miraculous but deeply imperfect state.

We see this every day in surgery: a life-saving operation complicated by a post-operative medication error; a simple procedure overshadowed by patient dissatisfaction over excessive waits or miscommunications; and the list goes on. Issues of safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity - the Institute of Medicine’s six core aims for improving our healthcare system - remain at large in our work. Despite our best individual efforts, things may not work out the way we planned. “Every system is perfectly designed to achieve exactly the results it gets”, Berwick taught us. The improvements we seek must be designed into the system.

Healthcare today is too complex for clinical outcomes to be judged solely by the work of individuals. Instead, effective teams and well-designed systems of care are needed. In this environment, our profession increasingly looks to its leaders to create the culture, processes, and policies needed to maximize patient care. A small subset of these leaders – our *institutional* leaders (eg. CEOs) and *service* leaders (eg. Department Chairs, Program Directors, Research PIs) – have traditionally been responsible for these tasks; their leadership roles are widely recognized, and they are the focus of many leadership development efforts. At MGH, we are fortunate to be led by some of the most inspirational and accomplished leaders in the business.

Yet, a larger subset of potential leaders – *frontline* clinical leaders (ie. those who work at the interface of patient care) – play an equally, if not more, important role in delivering high-quality, cost-effective care. These leaders, and the often new and unexpected responsibilities they assume in their everyday work, have been relatively under-recognized. In many instances, their development as leaders has been left to chance. These frontline clinical leaders are the focus of this article.

Prior to beginning my general surgery residency in 2011, I spent 2 years studying towards a Master in Business Administration (MBA) degree to better understand how healthcare systems are designed and improved. There, I participated in a research study on the topic of frontline clinical leadership development with two MD/MBA classmates and a faculty mentor. Our primary goals were to learn: how frontline clinicians take on leadership responsibilities; whether improved frontline leadership yields superior clinical outcomes; whether leadership can be taught; and if so, what actions medical educators may take to promote the development of outstanding frontline clinician-leaders.

Our research led us to a number of conclusions, most notably: 1) all ‘frontline’ clinicians take on leadership roles; 2) effective frontline clinical leadership improves both clinical outcomes and satisfaction for patients and providers; 3) leadership can in fact be learned (despite prevailing beliefs that leaders are ‘born’, not ‘made’); and 4) best practices exist to guide the design of successful leadership development programs for residents and faculty.

*Defining leadership and management:* Leadership and management fall on a spectrum of complementary and mutually dependent behaviors. Although no universal definition of leadership exists, leaders demonstrate the ability to articulate a vision or goal, to communicate this to others, and to build willing support. The best leaders display a high level of emotional intelligence and authenticity, and they empower others through passion and teamwork to be leaders in return.

In contrast, managers demonstrate the ability to set work goals and targets, to communicate about and delegate them appropriately, to create work plans and budgets, to hire staff, monitor performance, and respond to problems quickly.

The distinctions between leadership and management are not always clear, as individual leaders and managers may toggle back and forth, depending on the context.

*Frontline clinicians’ leadership responsibilities:* All frontline clinicians today assume both leadership and management responsibilities when delivering care (see Table 1). Patient safety, quality improvement and cost-containment, for example, rely not only on frontline clinicians’ decisions about what services to deliver, but also on their ability to manage the delivery of these services. Previously, these clinical processes and outcomes responsibilities fell to our service leaders, organizational leaders, policy-makers, and other administrative staff. However, the climate has changed, and frontline clinicians’ every-day responsibilities have evolved in response.

Consider our Department of Surgery’s Thursday morning M&M and Grand Rounds sessions. Increasingly, discussions center on quality improvement, patient safety, culture, and cost-effectiveness. Whether internally or externally driven, these issues are the reality of clinical practice today. ACOs, HMOs, PDSAs and RVUs comprise a small fraction of the alphabet-soup of considerations reaching the front-lines of care. For some practitioners, these new leadership responsibilities may be unexpected or even uninvited, perhaps because they were not emphasized in medical school or residency training.

*Relationship between leadership and clinical outcomes:* Frontline clinical leadership has been shown to positively influence patient outcomes, patient and provider satisfaction, and organizational performance across a broad range of healthcare settings, including surgery. While the peer-reviewed literature in this area is still emerging, favorable results have been reported. Efforts to understand and to better quantify these relationships are deepening. Furthermore, a wealth of evidence outside of healthcare suggests that effective leadership yields superior results.

Table 1. Examples of Clinical Team Leadership Skills:

- Encouraging communication and collaboration within and across teams
- Setting team direction
- Delegating responsibilities
- Encouraging purposeful action
- Following others’ leadership when necessary
- Harnessing collective skills and resources to produce results that exceed what each team member could achieve individually



Surgery has long been a neglected area of global health. The global burden of surgical disease is estimated at 15 percent of the total worldwide disease burden. Although diseases treatable by surgery remain a ranking killer of the world's poor, public attention and public health dollars most often target infectious diseases such as HIV, tuberculosis, and malaria. This outpouring of support has led to the development of public health resources across the globe. In turn, these resources have led to the growing recognition of the need for surgical care in low-and middle-income countries. Only recently has surgery been accepted as an equal partner in the fight against global health care inequity. The newsletter highlights the active role of the MGH Department of Surgery in global health. (Excerpted from Harvard Program in Global Surgery.)

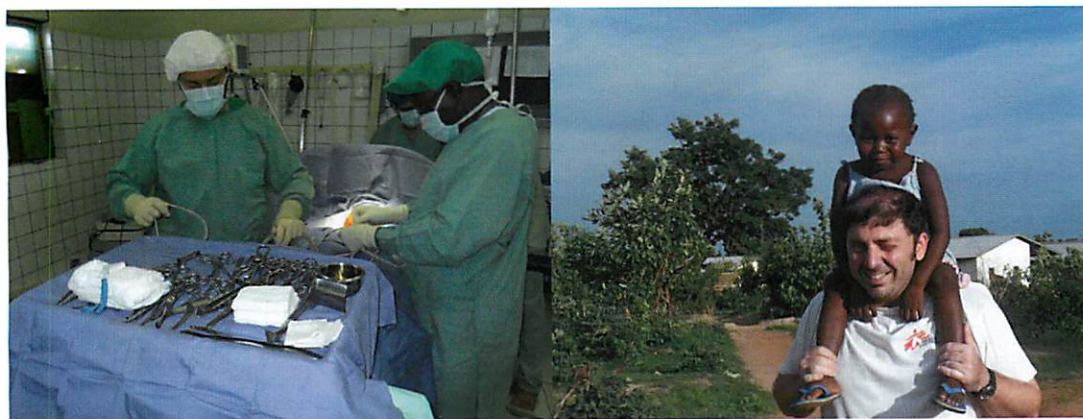
## LIBERIA



Since visiting Liberia in 2008 with her medical school, Dr. Tiffany Chao (MGH PGY3) has wanted to return to this country. This year, she had the opportunity to work there for five weeks in October and November as a research fellow with Harvard Medical School's Program in Global Surgery and Social Change. Dr. Chao taught medical students, contributed to clinical care, and developed research projects with the local surgeons at JFK Medical Center, the country's only tertiary care hospital. Her current research project involves the development of a knowledge base of surgical demographics and operative capacity at JFK Medical Center from 2009-2012. The data will guide the future development of surgical capacity at the Center in order to better utilize the hospital's limited resources to provide high-quality care, improve efficiency and guide development of residency programs in the most crucial clinical areas.

## CENTRAL AFRICAN REPUBLIC

In April-May 2012, Dr. Haytham Kaafarani, Trauma, Emergency Surgery and Surgical Critical Care Fellow, spent 5 weeks with Medecins Sans Frontieres in Paoua, Central African Republic (CAR). Paoua, on the northern borders with Chad, is recovering from a long-standing civil conflict with tens of thousands of people killed or displaced. Haytham performed a wide range of operative procedures spanning the fields of trauma, general surgery, pediatric surgery, burns, orthopedics, obstetrics and gynecology as well as dental surgery. Haytham, as the solo surgical provider in CAR (a country the size of France), performed more than 200 surgical procedures during his stay. Living in harsh conditions and with very basic medical equipment, he describes his experience as humbling, eye-opening and life-changing.



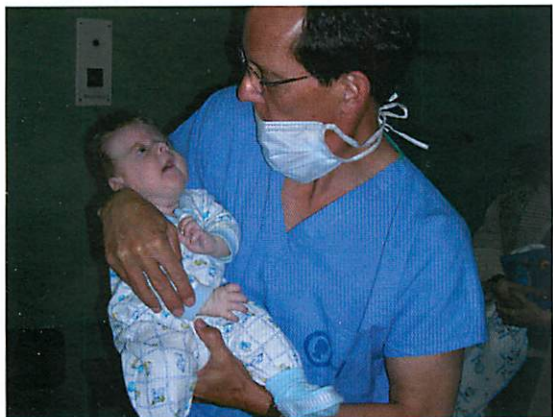
*(Global Surgery continued on page 9)*



## POLAND

Dr. Scott Bartlett, MGH alumnus and the Peter Randall Endowed Chair in Pediatric Craniofacial Treatment and Research at the Children's Hospital of Philadelphia, first visited Krakow, Poland in 1986 as part of an MGH team in a collaborative project with Project Hope and the US Government to enhance pediatric surgical care in the country. Since then, Dr. Bartlett has committed himself to this goal, visiting Krakow, Poland 2-3 times a year to assist in the surgical management of children with complex craniofacial abnormalities.

Dr. Bartlett is also the founder of The Children's Medical Foundation of Central and Eastern Europe, dedicated to improving the lives of children in hospitals in Romania, Ukraine, Poland, Lithuania and the Republics of Georgia and Bulgaria. Dr. Bartlett is joined in this project by another MGH alumnus, Dr. Craig Lillehei of Boston Children's Hospital. In addition to providing surgical collaborations in Central and Eastern European hospitals, the Foundation has initiated a Travelling Scholars Program with Boston Children's Hospital and the Children's Hospital of Philadelphia. (website: [www.CMFCEE.org](http://www.CMFCEE.org)).



Dr. Scott Bartlett



Dr. Craig Lillehei and pediatric surgical trainees from Poland, Ukraine and Lithuania (2012)

## UKRAINE

Since the president of Ukraine transferred a high profile patient to Boston Shriners Hospital in 2004, there has been a growing bond to assist in the care of burn patients. Several dozen children have come to Shriners Hospital for acute and reconstructive burn care and spine surgery. Dr. Gennadiy Fuzaylov (MGH Pediatric Anesthesia) and Dr. Daniel Driscoll (MGH Plastic Surgery) have been instrumental in facilitating this partnership in Ukraine. With the founding of their charity, Doctors Collaborating to Help Children ([www.DCTOHC.org](http://www.DCTOHC.org)), they have worked on a multi-pronged approach. During the third visit in September of 2012, Drs. Driscoll and Fuzaylov and two residents (Dr. Justin Knittel of anesthesia and Dr. Arthur Turko of plastic surgery) saw 38 children, performed 12 operations and arranged care for 4 complex patients in Boston. While in Lviv, they gave a series of lectures to over 100 burn care physicians. They have opened a learning center using teleconferencing to give lectures to the caregivers in Hospital #8 in Lviv and conduct tele-consultation to recommend care for burned children and arrange transport to Boston if necessary. The commitment continues. Drs. Fuzaylov and Driscoll plan for future patient care and surgery, a prevention campaign, and hopefully an improvement in the education and delivery of care by first responders.



Dr. Dan Driscoll



Dr. Craig Lillehei with trainees from Poland, Ukraine and Lithuania 2012



## COLOMBIA



“Our mission is to change the lives of children born with congenital deformities, with special focus on cleft lip and palate. We believe that all children have the right to receive high quality surgical care, regardless of ethnicity or socioeconomic status.”

Dedicated to this mission, in 2013, Dr. William “Jay” Austen (MGH Plastic Surgery Chief), Dr. Kyle Eberlin (MGH plastic surgery resident) (pictured left) and Annemarie Austin (MGH OR nurse) joined the 18th medical mission to the Hospital Infantil Napoleon Franco Pareja, a charity-funded hospital in Cartagena, Colombia. The medical missions are sponsored by Healing the Children-Northeast Chapter and the Rotary Club in Colombia. Teams are composed of multi-disciplinary healthcare professionals and focus on the surgical care of cleft and craniofacial patients (~60 patients per trip). Jay joined the team as a resident and has since made 4 trips with the teams.

## NICARAGUA

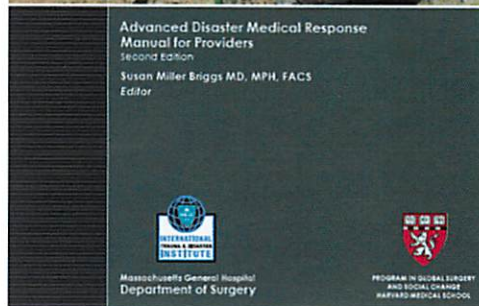
MGH Alumnus, Mark Kartchner and his twin brother, Max returned to Nicaragua this Spring for about the twentieth time to perform surgeries for the non-profit organization, Esperanza in the town of San Rafael del Norte, 100 or so miles from the capital of Managua. The 81 year old brothers spend weeks preparing for the trip, packing all the supplies, instruments and equipment they will need to perform about 80 operations. Assisted by local nurses and working 12 hour days the brothers operate on about ten patients per day for a variety of ailments. Retired in 1997 from Southern Surgical Associates, founded by the brothers, Mark still assists in surgery there most everyday. Dr. Kartchner comments “I can do a little good in the world, and the world could use a little good. It may only be a drop in the bucket, but enough drops will fill the bucket.”



## DEPARTMENT OF SURGERY

### INTERNATIONAL TRAUMA AND DISASTER INSTITUTE (ITDI)

**Mission:** A center of excellence for trauma and disaster preparedness and response under the direction of Dr. Susan Briggs, ITDI has developed multidisciplinary training programs and manuals designed to train disaster medical responders in the basics of medical and public health disaster care. The Advanced Disaster Medical Response (ADMR) manual is now available in 8 languages. Over the past year, MGH faculty have participated in train-the-trainer courses in Hong Kong and Macau, China, Colombia, Paraguay, and Brazil. The Second Edition of the ADMR manual will be published in 2013 under the auspices of the MGH Department of Surgery and the Harvard Program in Global Surgery.



*Special thanks to  
Dr. Susan Briggs and Dr. Peter Fagenholz  
for contributing this article.*



(Bohnen continued from page 7)

We have all experienced effective and ineffective teams, and observed the benefits to patient care of those more effective teams. When teams function effectively, they are usually well led. Conversely, when teams fail to achieve desired results, leadership deficits are often at play.

*Can leadership be taught? The Born vs Made debate:* There is a common misconception that leaders are “born” and cannot be “made”. While some individuals certainly possess natural leadership abilities, the literature both within and outside of healthcare supports the conclusion that leadership can be learned.

At least two meta-analyses (Burke & Day, 1986; Collins & Holton, 2004), covering studies of leadership development programs from 1951 to 2001, have demonstrated that leadership development programs can improve leadership skills, particularly when tailored to the needs of the trainee and the objectives of the organization.

This is particularly evident in the military. The U.S. Military Academy at West Point, for example, is built on the foundation that leadership can be taught. Statistically significant correlations have been identified between U.S. Army officers’ leadership skills (eg. leadership expertise, complex problem solving abilities, creative thinking, and social judgment) and their degree of leadership training. These skills are each important in healthcare, suggesting transferable findings to our work.

A review of the business and management literature shows that many of the most successful multinational corporations, including General Electric, IBM, and Boeing, devote significant time, energy and resources to leadership development at all levels of their organizations.

Furthermore, some healthcare systems such as Kaiser Permanente and the UK’s National Health Service have integrated extensive leadership training into the fabric of their organizations and are reporting positive clinical and financial results.

*Best Practices of Leadership Development Programs:* Frontline clinical leadership development programs are in their infancy in academic medicine. As such, educators face the difficult challenge of deciding how best to incorporate these programs into practice. Fortunately, many resources exist to guide these efforts. Two helpful frameworks are found below:

1) *Authentic Leadership Development:* ALD is a popular Harvard Business School leadership course that teaches participants to be more effective leaders through an inward-facing journey aimed at understanding their motivations, capabilities, leadership purpose, style, and limitations. The course’s three primary components - experience, reflection, and feedback – are cycled iteratively in large and small group sessions; they are considered essential for developing authentic and effective leadership skills.

Dr. Wiley (“Chip”) Souba, former Chief of Surgical Oncology at MGH, writes extensively on the topic of surgical leadership and agrees with this introspective approach:

“We tend to think of leadership as being about a person in charge who wields power, stands apart, and “acts” on others...the notion that leadership development is tightly linked to a quiet, often private, inward journey is frequently overlooked... The journey of leadership begins on the inside by asking several key questions: Who am I? What do I stand for? Where does my leadership come from? How do I become a more effective leader? (Souba, WW. *The Inward Journey of Leadership. Journal of Surgical Research.* 2006:131;159-167.)

2) *Center for Creative Leadership:* CCL is a non-profit leadership consulting firm that ranks among the top leadership development programs worldwide. It asserts that successful leadership development programs include the following three components: Assessment (of trainees’ leadership skills and development over time), Challenge (participants to reach outside their comfort zones and to take personal responsibility for their development), and Support (through teaching, coaching, and feedback).

These two frameworks can be adapted to improve the leadership skills of participants across diverse settings. Additionally, educators may look to published best practices. A 2010 review by McGonagill identified nine best practices of leadership training programs (see Table 2).

1) Reinforcing and building a supportive culture	6) Using a variety of learning methods
2) Ensuring high-level sponsorship / involvement	7) Extending learning periods and support
3) Tailoring goals and approach to the context	8) Encouraging ownership of self-development,
4) Targeting a specific audience	9) Continuous program improvement
5) Integrating all features of the program	

*Promoting Leadership Development in Graduate Medical Education:* Graduate medical education is an ideal place to focus efforts to develop outstanding frontline clinical leaders. Though residents do not regularly hold leadership titles, we take on significant clinical leadership responsibilities each day, including: overseeing clinical services and multi-disciplinary teams, mentoring junior residents and medical students, leading family meetings, negotiating conflicts, and allocating resources. We also face personal leadership responsibilities relating to the acquisition of surgical skills, time management, work-life balance, fatigue, successes and failures.

Our position at the lead-point of care creates opportunities to identify systemic safety and quality deficits, and to initiate improvement efforts. This year, our residency program has instituted a wonderful new quality improvement initiative wherein each PGY class is developing its own

quality improvement project. Efforts such as these promote camaraderie and instill teamwork and systems leadership skills throughout the training program.

(Bohnen continued on page 12)



(Bohnen continued from page 11)

Frontline clinical leadership development is consistent with the ACGME's core competencies of graduate medical education. It is implicit in the Practice-based Learning and Improvement competency; the Interpersonal and Communication Skills competency; and the Systems-based Practice competency. Further benefits can be traced to each of the six core competencies.

Focusing on the development of outstanding frontline clinician-leaders challenges residency programs to balance technical and knowledge-based skills acquisition with the development of non-traditional leadership skills such as: emotional intelligence, teamwork, communication, followership, change management, negotiation, and – in this age of social media – building professional networks. Doing this will require dedicated efforts, and must address barriers such as i) the perception that clinical and leadership responsibilities conflict, ii) lack of recognition or rewards for frontline leaders, and iii) lack of agreement on best practices of leadership development programs.

Interestingly, many of today's institutional and service leaders consider themselves to be 'accidental leaders'. Without dedicated training earlier in their careers, their development as leaders occurred in an ad-hoc fashion. Residents today are the institutional, service, and frontline leaders of tomorrow. Focusing on leadership development earlier in the training process will ensure that we are prepared to meet the challenges we will face.

*Closing thoughts:* For over 200 years, the Massachusetts General Hospital and the MGH Department of Surgery have been cultivating a legacy of leadership. In pursuit of outstanding patient care, each generation has innovated to meet the leadership challenges of its day. Last year, we rejoiced at the announcement of our #1 ranking in the US News and World Report. Yet, for many of us, and for the new residency class joining us this summer, our work as frontline clinical leaders is just beginning. The leadership challenges of our day demand another look at the skill sets we need.

Many years ago, Dr. Berwick taught me that every system is perfectly designed to achieve exactly the results it gets. Today, leadership training is a worthy innovation in our own education as clinician-leaders, and may prove helpful on our quest to achieve exactly the results our patients need.

*(Editor's note: Jordan Bohnen began his residency in General surgery at the MGH in July of 2011. His undergraduate education was at the University of Toronto and Harvard College, where he received an AB cum laude with High Honors in Field in Health Care Policy. Between 2005 and 2011 he completed his degree in Medicine at HMS and an MBA at the Harvard Business School.)* ♦

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(Russell continued from page 3)

observed was that acute transplant rejection could often be reversed. This was a surprise as little attention to this possibility had been given in animal experiments. All of the early transplants came, of course, from living donors. Because of the risk to donors, and because it was suspected that family members might be more compatible, we confined donation to selected family members. Much was later learned about compatibility and how to test for it.

In the late nineteen sixties the attention of experts representing many specialties became increasingly concerned about the proper management of patients suffering from irreversible coma, later termed "brain death". Dr. Henry Beecher, of our Anesthesia Department, convened a committee under Harvard auspices to carefully define acceptable criteria for this diagnosis with the intention that continuing treatment of such patients could properly be stopped. Here is the very influential paper that resulted (Fig. 2).

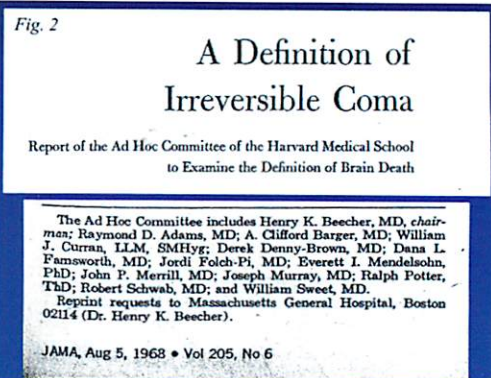
States rather than the Federal Government are responsible for matters such as rules regulating marriage, and licenses of various kinds. The new diagnosis of brain death thus required action by state legislatures across the country and this was accomplished in just a few years. We realized that transplant surgeons had to be careful about their role in this diagnosis as they can be subject to a clear conflict of interest. This is now well accepted.

The possibility of sharing donated organs between hospitals then emerged. I was involved in a particularly vivid example of this. Dr. Francis Moore, then in charge of surgery at the Brigham, called me at home one Sunday morning. He told me he had heard on the radio that we had, at the MGH, a policeman who had been shot in the head as he attempted to stop a robbery. Moore had a patient with severe liver failure and was urgently looking for a donor liver. He asked if I would survey the situation and remove the liver for him if it was appropriate. With the help of my resident, Tony Monaco, the liver was removed, packed in ice, and transported to the Brigham. Moore's patient received the liver but survived for only a short time. This experience prompted me to begin arrangements for an organization for the sharing of such organs among Boston hospitals. I brought together representatives of several hospitals, including some that had no active involvement otherwise with transplantation.

A few years later I served on a group brought together by Margaret Heckler, Secretary of the Department of Health and Human Services, to consider creating a national organization for the same purpose. Our task force reported enthusiastically in the affirmative, and we testified to congress to that effect. Appropriate legislation followed creating the United Network for Organ Sharing (UNOS) while our Interhospital Organ Bank expanded to become the New England Organ Bank that serves us today.

Transplantation was rapidly expanding. The undeniable interest in the many unsolved biological problems presented in the field, and the gradually improving clinical results along with the possibility of extending transplantation to other organs attracted growing attention. The involvement of both clinicians and experimentalists from widely different parent fields made the subject even more interesting. The

(Russell continued on page 13)





*(Russell continued from page 12)*

small group originally involved had close personal relations and intercommunication at small scientific meetings and expanded steadily. The variation in transplant outcome made us quite aware that we needed reliable tests for compatibility between donors and recipients. We had a good guide from the extensive work that had been done to define inbred mouse strains.

I recruited Dr. Henry Winn, PhD to join us at the MGH from the Jackson Lab and he proved to be invaluable in teaching us the fundamentals of immunogenetics. We found that the "normal lymphocyte transfer test" offered one possibility for a pretty good predictor of compatibility. This test consisted of injecting a given number of purified lymphocytes from a volunteer acting as a potential recipient into several others acting as potential donors. These injected cells reacted to their surroundings in a graft versus host fashion to give tuberculin-like reactions the size of which constituted a compatibility test. This test could then be evaluated by determining the survival time of test skin grafts between these subjects.

Compatibility depends, of course, upon a large number of genetically determined cell surface substances that gradually became identified, first by serological methods, and eventually by molecular biological techniques. This eventually defined the HLA system and established that this principal group of antigens is determined by a cluster of genes on the sixth autosome termed the "major histocompatibility complex", the HLA system in humans. We didn't know nearly all of these antigens, but we did realize one important thing about compatibility within families even though we couldn't identify all of the antigens involved. Family studies showed that 25% of any two siblings will share the MHC genetic complex that they have received from their common parents. A further 50% would share only one of their parents' two MHCs while the last 25% would share neither.

Henry Winn was at the forefront of efforts to define human histocompatibility antigens. We spent many evenings going to women's club meetings and explaining to them how valuable their blood samples could be for histocompatibility testing as multiparous women usually develop antibodies to the antigens in their babies of paternal origin that are useful in tissue typing. We found some great sera this way that were also used in other laboratories doing the same kind of work.

I will mention another area of research closely related to our growing clinical program which was the development of a new approach to immunosuppression, namely the use of antisera directed to immunologically active cells to suppress or destroy them. Hints that this approach might be fruitful were around, but we began with virtually no guidance from previous observations. Along with Tony Monaco, who was working in our lab as well as helping me with patients, we explored the immune effects of antisera made in one species against the cells of another (mouse cells in rabbits). These sera proved to be surprisingly and profoundly immunosuppressive allowing skin grafts between incompatible mice to live for months. Tony also made some useful sera in horses against dog cells that were very effective. Later, when Ben Cosimi joined us as a fellow he worked on producing sera in horses against primate cells which led to our making such sera against human lymphoid and thymus cells. When the technique for producing monoclonal antibodies was discovered, and a wonderful discovery it was, we teamed up with the Ortho Pharmaceutical Co., a division of Johnson & Johnson, and selected one of their monoclonals directed to human T lymphocytes for what I think was the first trial of a monoclonal for therapeutic purposes. It was called OKT 3. The effect of a mere 2mg of antibody protein delivered intravenously to our first MGH patient with an acute rejection reaction was remarkable. Ben Cosimi followed this up nicely and learned a great deal about how to use these agents to the best advantage.

New and valuable immunosuppressive agents were being introduced and are still being introduced all the time and continued to be discovered. One that made a big difference to transplant survival and encouraged many new recruits to the field was cyclosporine. Its use greatly improved results with all organ transplants thus encouraging the development of liver, heart and lung transplantation. This agent, found by Borel of the Sandoz pharmaceutical corporation, consists of a ring of 11 amino acids. While remarkably effective its dosage must be carefully controlled with a special eye to nephrotoxicity. These new agents add to the complexity of management. They offer multiple options that add to the complexity of management of all transplant recipients making it a complicated and demanding business.

Transplantation continued to grow very rapidly as a field. Our group at the MGH that has included too many for me to properly acknowledge, continued to grow. New journals, new societies, with hundreds and later thousands of members have emerged. After Tony Monaco, Rob Corry was an able right hand man for me. He went on to chair the Department of Surgery at Iowa and to contribute a lot at Pittsburgh, especially in developing pancreas transplantation for diabetes. Ben Cosimi followed him and went on to succeed me in running our transplantation effort. We began liver transplantation immediately after our hospital trustees denied us the opportunity to begin heart transplantation as this was considered too extreme and expensive a treatment at the time. A number of able people have developed lung, and later, heart transplantation. Our new head, James Markmann, came to us from the University of Pennsylvania to succeed Ben. Jim is also actively engaged in developing islet transplantation with improving success.

The attrition rate of surviving transplanted organs over the years has improved very little whereas overall success for one year is now about 90%. This is now one of our major problems. Probably due to multiple factors, but the greatest seems to be the development of an immunologically-mediated inflammatory vascular disease that often develops in the arterial vessels of transplanted organs, perhaps especially hearts. We are now studying this intensively. Our colleague Robert Colvin, of MGH Pathology, is centrally involved and Joren Madsen, who is taking a leadership role in all our transplant activities is also involved.

I cannot conclude without major mention of David Sachs and his large and successful effort at the Transplantation Biology Research Center housed in Charlestown. From HMS (while a student he did some nice work in our laboratory) David became a surgical resident here at the MGH. He then went on, he thought temporarily, to the NIH where he developed a large group working on transplantation immunology. From the work of his laboratory a potential approach to the production of immunological tolerance in adult individuals was created. We were successful in bringing David back to the MGH where he has teamed up with Ben Cosimi and several other indispensable colleagues, such as Tatsuo Kawai, to create tolerance of kidney transplantation in a few selected patients. I cannot do the subject justice here, but it represents

*(Russell continued on page 14)*



(Russell continued from page 13)

work of real importance and promise that is very satisfying for me to see. Here is the team with one of their first completely tolerant kidney transplant recipients who takes no immunosuppressive drugs (Fig. 3).

I must also give mention to David's persistent and most interesting efforts to provide an entirely new source of organ donors in the form of genetically prepared mini pigs as donors of "xeno" transplants. Here is one (Fig. 4).

The work of David's able group continues on a number of fronts and our multidisciplinary transplant group is poised to continue contributing new discoveries to a field that has come a long way but we hope will go a lot further.



I hope you can now see why I was so moved to see patients with new organs even out in rural Michigan as though it was just a routine bit of everyday medicine.

*(Editor's note: Dr. Paul S. Russell graduated from the University of Chicago where he received both a B.S. and then in 1947 an MD. He was appointed an Intern in Surgery at the MGH in 1948 and served as the East Resident in 1956. During his Surgical Residency he spent a year (1954-55) in Professor P. B. Medawar's Laboratory, University College of London as well as serving in the United States Air Force from 1951-53. In 1960 he was recruited by Columbia University as Associate Professor of Surgery and returned to the MGH in 1962 as Chief of the General Surgical Services on Dr. Churchill's retirement.*

*During this time Paul established the Laboratory of Transplantation Surgery at the MGH which has trained numerous Transplantation Surgeons and Biologists as well as making many important contributions to Transplantation Biology and to Surgery. Although ostensibly retired from Transplantation he continues to function as a distinguished Investigator, Teacher and superb Model of an Academic Surgeon as he serves as Senior Surgeon at the MGH and the John Homans Distinguished Professor of Surgery at HMS. The MGH Museum of Medical History and Innovation has been named after Dr. Russell in recognition of his contributions to the hospital.) ♦*

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(Lillemoie continued from cover page)

Two important Department initiatives will contribute to this process. First, a new Philanthropic Leadership Committee which has been established to work closely with our excellent development staff to ensure that we utilize all potential resources available including grateful patients and other friends of the department to not just improve our fundraising efforts but to ensure that such gifts are used optimally to benefit the department and to provide a appropriate stewardship of such gifts. Finally, a new departmental Diversity Committee has been established to promote and advocate for underrepresented minorities within the department both on the faculty, in the residency, and support staff. It is the goal of this committee to work to advance the careers of existing members of our organization and to establish a pipeline of recruits to our house staff, fellowships, faculty and leadership positions. Mike Watkins and Pat Sylla are co-chairing this committee with the administrative support of Angela Marquez of our Transplant Center. Multiple initiatives are already underway including recent visiting professors such as Selwyn Vickers, M.D., Chair of the University of Minnesota, and Selwyn Rogers, M.D., the new Chair at Temple. Augustus White III, M.D., Harvard Professor Emeritus in Orthopedic Surgery, visited last fall as the McCabe Visiting Lecturer of Surgical Education.

Highlights of the last few months include several outstanding visiting professors including Mark Talamini, M.D., Chairman of the University of California San Diego as the Richardson Visiting Professor, Professor René Adam of the Paul Brousse Hospital in Paris, France as the MGH/John Hopkins International Visiting Professor and most recently Charlie Ferguson as the second Ferguson/Ottinger Visiting Lecturer. It was great to have Charlie back and he gave a very inspiring talk to the residents and faculty.

Some other very important points of recognition for the Department include Dr. Susan Briggs who was recognized nationally as the 2013 Global Health Awardee by Project Hope. A ceremony will be held in June in New York City recognizing Susan. Pat Sylla, an assistant professor in the Division of General Surgery was recently recognized by the Society of American Gastroenterologic and Endoscopic Surgeons as the Young Researcher of the Year and David Rattner, the Division Chief of General and GI Surgery received that organization's Distinguished Service Award for significant long-term educational, research, clinical and or technological contributions to the field of surgical endoscopy as well as to SAGES. This is one of the highest awards granted by the organization. Rising senior resident, Johannes Kratz was recognized

*(Lillemoie continued on page 15 )*



*(Lillemoe continued from page 14)*

as the recipient of the 2012 Partners "Resident/Fellow as Teacher Award". This award recognized Johannes as the most outstanding resident or fellow teacher throughout the entire Partners Healthcare System, a great tribute to a young man with a great future. Not to be outdone Carlos Fernández-del Castillo was chosen by the Harvard Medical students as the Best Clinical Instructor in Surgery and Surgical Specialties. Finally, the Department this year had a record four faculty recognized by the MGH Cancer Center as members of the "100" top contributors to cancer care: Amy Colwell (Plastic Surgery), Cristina Ferrone (General and GI Surgery), James Cusack (Surgical Oncology) and Doug Mathisen (Thoracic Surgery).

Just in case you feel there has been any drop off in surgical research within the Department of Surgery. I would hope you would have noticed two papers from the Department that received national acclaim by both the scientific community and in the lay press. First in a paper published in the Proceedings of the National Academy of Sciences, Ronald Tompkins, Chief of the Massachusetts General Hospital Burn Service has pointed out why the use of mouse models has been misleading in attempts to predict the results of clinical drug trials in the areas of sepsis, burns, and trauma. More recently, Harald Ott, still a thoracic surgery fellow, but a researcher in the Mass General Center for Regenerative Medicine has published in the journal, Nature Medicine, a report describing a successful bioengineered mouse kidney that was transplanted into a rat and was capable of providing limited renal function. Although still in early stages, the work of Harald and his colleagues offers an exciting potential solution to the organ shortages that hamper transplantation throughout the world.

Now a bit of a view into the future. In this newsletter you will find the names of the new general surgery residents who will be starting in July. It is an outstanding group of young men and women who represented "the cream of the crop" entering surgical training this year. We are very excited about their future in this program. The Department is moving into the new age of social media. In addition to working to provide more frequent updates to our website, the Department has established both a Facebook page and a Twitter account. If any of you use these social media details will soon follow as to how to obtain more frequent updates of departmental activities.

Finally, former MGH resident and current faculty, Allan Goldstein has been named the new Chief of the Division of Pediatric Surgery at the MGH. Jay Vacanti will remain in his position of Surgeon-in-Chief of the Massachusetts General Hospital for Children and lead the MGH Center for Regenerative Medicine.

As I close, I must acknowledge the horrors of the deadly bombing at this year's Boston Marathon and the subsequent manhunt. Recognizing the terrible human loss, I must say that you all should be extraordinarily proud of the work that was done in the care of over 30 severely injured patients rushed to the MGH Emergency Room after the assault. The care delivered by the Churchill Trauma and Emergency Surgery Service as well as colleagues from throughout various services and, of course, our residents was essential in providing the highest level of urgent care to the tragic victims of this senseless act. It was certainly a moment of pride for the MGH and the Department that eventually even led to the visit of President Obama and Representative Kennedy to the MGH to visit the victims and acknowledge the caregivers.

So as I close at the end of my second year as the Chief of Surgery here at the MGH. I want to express my appreciation of all the support from alumni across the nation as well as our current faculty and housestaff. There is no doubt this is the "best surgical job in the world", not an easy one, but I am totally enjoying every aspect. I look forward to seeing you at the MGH Surgical Society Reception at the Clinical Congress of the American College of Surgeons in Washington DC in October. ♦

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**\*\*\*\*\*WE WANT TO HEAR FROM YOU\*\*\*\*\***

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**THANK YOU**