We hope that you enjoy your second edition of the “new and improved” Department of Surgery Newsletter. We are still working out the bugs, but are anxious to continue to share information about the activities, accomplishments, and contributions of our many faculty, residents, and staff.

The academic year is already well under way. The “new” interns are one third of the way through their first year and they all seem to be doing quite well. The last group of senior residents is awaiting match results. The invitations for intern applicants have been sent and it looks like we will be interviewing an outstanding group of young individuals who all seem to be excited about the opportunity to train at the MGH. We appreciate the efforts of all the faculty and residents in this very important interview process.

As you know, “Surgery” at the MGH has taken a “hit” with the recent article in the Globe. Nevertheless, our services remain as busy as ever and our outcomes remain strong. We hope to learn from this unfortunate experience and to further strengthen our program.

For the faculty, please mark your calendars for a Surgical Staff Meeting on Wednesday, December 16, at 7 a.m. in the Sweet Room. The December meeting is when we share a summary of the year’s financial and research activities. You will all be pleased to know that it was a very good year for the Department.

Finally, we hope you will continue to have an interest in sharing any information you might have concerning your own activities. Please send your announcements or other activities to kwilliams12@partners.org by March 15, 2016, in time for the next newsletter, which will be published in the Spring.

— Keith D. Lillemoe, MD
Chair, Department of Surgery
Research News
Harvard-Longwood T32 Research Training Program in Vascular Surgery

Currently in its 22nd year, the Harvard-Longwood Research Training Program provides two years of basic training in cardiovascular surgical research for academic clinicians. The program addresses the absence of adequate research training for cardiovascular surgeons in specific areas of clinical disease. The training program is led by Frank W. LoGerfo, MD, a vascular surgeon at the Beth Israel-Deaconess Medical Center (BIDMC), and the program is fully funded by the National Institutes of Health. The Department of Surgery was fortunate this year to have four residents (see below) accepted into the 2015 program.

Over the course of the year, surgical trainees will pursue a program of intensive research supplemented by required coursework in research design, ethics, statistics, and evaluation of published research. The program is conducted and closely supervised by the program director and a faculty of mentors, who have well-established records of peer-reviewed research. Mentors are selected based on their current research activities and proven commitment to training research fellows. Individual mentors are chosen from the program faculty on the basis of the background and research interest of individual trainees.

Each mentor works closely with their assigned trainee throughout the 2-year training period. The trainees conduct their own research projects. Laboratory training can be supplemented by graduate level training at Harvard Medical School and Harvard’s Faculty of Arts and Sciences, with course selection complementing the fellow’s laboratory endeavors.

Fellow: Sarah Deery, MD
Project: Comparative Effectiveness Research in Vascular Surgery
Description: Dr. Deery is working on several projects to evaluate outcomes in vascular surgery while simultaneously studying for a Master’s in Public Health degree with a concentration in Comparative Effectiveness. Her area of interest is the comparative management of thoracic and abdominal aortic aneurysms with open and endovascular procedures. In other work involving decision analysis, she is creating Markov models to simulate outcomes following open versus endovascular aneurysm intervention in individualized patients based on preoperative characteristics.
Mentor: Marc Schermerhorn, MD, BIDMC, Chief, Vascular and Endovascular Surgery

Fellow: Madhukar Patel, MD
Project: Preventing Device-Associated Infections with Slippery Liquid-Infused Porous Surfaces (SLIPS)
Description: Device-associated infections often represent clinical manifestations of bacterial contamination of biomaterial surfaces, which may occur despite best practices in sterile technique and application of prophylactic antibiotics. As these infections account for tremendous medical costs and often result in significant patient morbidity and mortality, this project aims to develop a new approach to re-engineering the material-tissue interface so as to inhibit the development of device-associated infections. Dr. Patel plans to study the preventive effect of applying a novel synthetic surface coating, known as slippery liquid-infused porous surfaces (SLIPS), on subsequently implanted biomedical devices.
Mentor: Dr. Elliot L. Chaikof, MD, PhD, BIDMC

Fellow: Derek Klarin, MD
Project: Exome Sequencing and the Genetics of Abdominal Aortic Aneurysm
Description: In this project, Dr. Klarin proposes to use the latest in DNA sequencing technology to better understand the genetic factors that contribute to the development of abdominal aortic aneurysms.
Mentor: Sekar Kathiresan, MD, MGH

Fellow: Brandon Wojcik, MD
Project: Vascular Targeting of A20-Based Therapies to Treat Transplant Arteriosclerosis
Description: Intimal hyperplasia leading to transplant arteriosclerosis following transplantation is the signature lesion of chronic rejection. The rate of rejection and allograft failure has not decreased despite maximum medical therapy and immunosuppression. Interferon gamma is a key pathogenic effector of transplant arteriosclerosis. Prior work has demonstrated that A20, a natural atheroprotective protein...
Neutrophil Decision-Making in Health and Disease

Daniel Irimia MD PhD, Assistant Professor of Surgery and Deputy Director of the BioMEMS Resource Center in the Center for Surgery, Science, and Engineering, was awarded two grants to investigate the role of neutrophil decision-making in health and disease. The first award is an exploratory/developmental research grant (R21) from the National Institute of Allergy and Infectious Diseases (NIAID) to study the effect of chronic inflammation on neutrophil migration. The second is an R01 project from the National Institute of General Medical Sciences (NIGMS) which focuses on the role of neutrophil decision-making in sepsis.

Dr. Irimia’s exploratory R21 will investigate chronic inflammation — the pathology responsible for seven of the top ten leading causes of mortality in the developed world, from atherosclerosis and heart disease to diabetes and cancer. Neutrophils, the white blood cells involved in protecting organisms against microbes, recently have been shown to participate in the initiation, tissue damage, and persistence of chronic inflammation. To better understand the pathology of chronic inflammation, Dr. Irimia and his team are developing novel microfluidic tools to enable in vitro studies of newly discovered migration patterns that return neutrophils from tissues into circulation. These tools will enable investigators to characterize the reverse migration of neutrophils and to identify specific markers to differentiate neutrophils that have undergone reverse migration from naive neutrophils in blood samples from patients with chronic inflammation. If successful, this research could lead to new methods for monitoring chronic inflammation, enable early diagnosis, allow sufficient time for patients to adopt lifestyle changes, and assist early treatments. These methods could have major implications for reducing morbidity and mortality associated with chronic inflammatory diseases.

Dr. Irimia also received R01 funding for a related study from the National Institute of General Medical Sciences (NIGMS). This project involves the role of neutrophil decision-making in health and disease with a specific focus on sepsis.

Sepsis is the leading cause of death in patients with large burn injuries and its treatment is usually focused on the use of proper antibiotics. However, the body’s own resources, the neutrophils, are often ignored, even though evidence exists that this subpopulation of white blood cells is essential for protection against microbes and becomes progressively defective after burn injuries. In this proposal, Dr. Irimia will employ novel microfluidic tools to probe the changes in neutrophil phenotype after burns, design new...
tools for measuring emerging neutrophil phenotypes, and monitor the interactions between neutrophils from patients and microbes in controlled conditions in vitro.

Suggested reading:

NIH Awards — June through Oct. 2015
Bryan C. Fuchs PhD (Surgical Oncology) received R01 funding from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) to study the Molecular Imaging of Liver Fibrosis using magnetic resonance (MR) imaging in several animal models. The goal is to develop methods to stage liver fibrosis noninvasively and to determine whether fibrotic burden or active fibrogenesis can predict late-stage liver outcomes, including hepatocellular carcinoma (HCC).

Tatsuo Kawai MD PhD (Center for Transplantation Sciences) received U19 funding from the National Institute of Allergy and Infectious Diseases (NIAID) to study Tolerance of Liver Transplants via the Mixed Chimerism Approach.

Sara I. Pai MD (Surgical Oncology) received R01 funding from the National Institute of Dental and Craniofacial Research (NIDCR) to study Immune Checkpoints and HPV-associated Head and Neck Squamous Cell Cancers (HNSCC). The aim of this R01 is to test whether blocking IL-10 and/or IDO1 pathways in HPV-HNSCC can enhance host anti-tumor immune responses.

Mikhail I. Papisov PhD (Center for Surgery, Science & Engineering) received R01 funding from the National Institute of Neurological Disorders and Stroke (NINDS) to study Factors of Cerebrospinal Drug Transport in animal models. The objectives of the proposed work are (a) to investigate the mechanisms of hydrostatic bolus translocation and the subsequent hydrodynamically driven solute transport, and (b) to compose and test a mechanistic pharmacokinetic model suitable for drug development.

Laurence A. Turka MD (Co-director, Center for Transplantation Sciences) received R34 funding from the National Institute of Allergy and Infectious Diseases (NIAID) to study Cellular Therapy with Allospecific Tregs in Liver Transplantation. Dr. Turka’s lab has been developing a unique methodology to expand and purify donor-specific Foxp3+ T regulatory cells (Tregs) ex vivo using costimulatory blockade with belatacept. In addition to this R34, the lab has just received an IND from the FDA for a phase I safety trial of Tregs made in this manner in live-donor renal allograft recipients. However, the most immediate therapeutic potential for using donor-specific Tregs to achieve immunosuppression reduction/withdrawal is in liver transplantation, which is the aim of this R34.

Jonathan G. Hoggatt PhD (Center for Transplantation Sciences) has received an R00 research transition award from the National Heart, Lung, and Blood Institute (NHLBI) to study Macrophage Regulation of the Hematopoietic Stem Cell Niche. The aim is to define how macrophages, newly appreciated effectors of tissue homeostasis, contribute to conditions in the bone marrow hematopoietic stem cell niche of consequence to stem cell harvesting and engraftment under homeostatic and inflammatory conditions.

Clinical News
MGPO Quality Incentive Program
Surgery achieved all CY Term 2 2015 Measures at 100%! The measurement period was July 2015 – September 2015 and payments will be distributed to eligible clinicians in December 2015. The measures included:
• ICD-10 Training of Surgeons (hospital-wide measure) – All of our surgeons completed the required training.
• Development of Three Enhanced Recovery After Surgery (ERAS) protocols (department LOS reduction) – Pilot protocols were developed for Burn, Bariatric Surgery, and Esophagectomy.
• Publication of at least one Vidscrip per Division (department population health measure) – Our Divisions worked hard writing scripts and making the videos with the help of the Population Health Management (PMH) team.
New Physicians and Science Faculty

David A. D’Alessandro Jr MD joined the Division of Cardiac Surgery on September 10, 2015 as the Surgical Director of Heart Transplant & VAD. He was previously the Surgical Director for Cardiac Transplant at Montefiore Medical Center located in Bronx, New York. His clinical focus has been surgical treatments for end-stage heart failure, including mechanical assistance and heart transplantation. He has a broad experience in all aspects of adult cardiothoracic surgery, including on and off pump coronary artery bypass surgery, valve repair and replacement, and the treatment thoracic aneurysms.

Branko Bojovic MD joined the Plastic & Reconstructive Surgery faculty on October 1, 2015, and also joined the faculty at the Shriners’ Hospitals for Children – Boston. Dr. Bojovic is returning to the MGH where he completed part of his Plastic Surgery residency as part of the Harvard Combined Plastic Surgery Program. After completing his residency, he completed a fellowship at Johns Hopkins, where he remained as a member of the faculty for some years. Dr. Bojovic specializes in craniofacial surgery and microsurgery.

Heather R. Faulkner MD MPH joined the Plastic & Reconstructive Surgery faculty on August 1, 2015. Dr. Faulkner recently finished a year with Plastics as the Adult Reconstructive and Aesthetic Breast Surgery Fellow, and she will be practicing in Danvers.

Deepika Nehra MD, Instructor in Surgery at Harvard Medical School, joined the Department as a Research Fellow on July 15, 2015 to support the Global Surgery Initiatives program in Mbarara, Uganda. Dr. Nehra will be working with colleagues with the MGH Global Surgery team and the MUST team in Uganda to help improve surgical and trauma care. She received her medical degree from Stanford University School of Medicine and completed her surgical residency at MGH.

Mauricio Villavicencio MD joined the Division of Cardiac Surgery on September 10, 2015 as the Surgical Director of Lung Transplant & ECMO. He finished a general/cardiac surgery residency in Chile and received additional training in cardiovascular surgery and thoracic transplantation at the Mayo Clinic in Rochester, MN. He then did further training in Heart & Lung Transplantation with a focus on Lung Transplant at the Freedman Hospital in the UK for Professor John Dark. Mauricio returned to Chile in 2007, where he founded and directed two cardiopulmonary transplant programs.
Michael D. Wertheimer MD, Associate Professor of Surgery at Harvard Medical School, joined the Division of Surgical Oncology and the MGH Center for Global Health on October 1, 2015 to help develop a breast health program in Mbarara, Uganda. Dr. Wertheimer received his medical degree from the University of Pennsylvania School of Medicine and completed his surgical residency at Beth Israel Hospital and University of Massachusetts Medical School. Dr. Wertheimer has extensive experience in the development of breast health programs in Boston area hospitals and international locations and is currently serving as the Interim Chief of Surgery at the Cambridge Health Alliance.

Honors, Awards and Prizes

Myriam Martinez Aguilar MD (Division of Trauma, Emergency Surgery and Surgical Critical Care) received a $500 prize for her abstract, The Role of Computed Tomography in the Diagnosis of Necrotizing Soft Tissue Infections, presented at the 2015 MGH Clinical Research Day.

Jay Austen MD (Chief, Plastic and Reconstructive Surgery) was awarded Best Experimental Paper in Plastic and Reconstructive Surgery for calendar year 2014 for his manuscript, Comparative Analysis of Processing Methods in Fat Grafting (first author, MGH Plastics Resident, Harry Salinas).

Jordan Bohnen MD, a general surgery resident, received the American College of Surgeons Excellence in Research Award for his abstract, Changing Trends in the Operating Room (OR) Times Between Teaching and Non-Teaching Cases: Less Time for Learning? He also received a $250 prize for his presentation at the MGH Clinical Research Day.

Genevieve M. Boland MD PhD (Surgical Oncology) has been selected to receive a KL2/Catalyst Medical Research Investigator Training (CMerIT) Program grant from Harvard Catalyst. Dr. Boland has also been awarded by the Board of Trustees of the American Surgical Association Foundation Fellowship for her research proposal entitled, Analysis of Circulating Exosomes in Melanoma Responders/Non-responders to Immunotherapy, as well as grant funding through Ethicon from the Academy of Women Surgeons.

Susan Briggs MD (Trauma, Emergency Surgery and Surgical Critical Care) was awarded with the Manilla-based Gusi Peace Prize in Medicine and Humanitarianism. The Gusi Peace Prize recognizes individuals and organizations who have contributed to global peace and progress through a wide variety of fields. The Gusi Peace Prize, which is considered to be the Eastern equivalent of the Nobel Peace Prize, was founded by chairman Barry Gusi as a way to continue the work of his late father, Captain Gemeniano Javier Gusi, a World War II guerrilla fighter who fought against the Japanese and later became a politician and human rights advocate, and his mother Madame Teodora Sotejo Gusi, a human rights advocate in her own right.

Kathryn L. Butler MD (Trauma, Emergency Surgery and Surgical Critical Care) received the Morgan-Zinsser Academy Fellowship in Medical Education from the Harvard Medical School for Academic Year 2015-2016 for her project: Validity and Feasibility of an OSCE for Student Assessment on the Surgical Clerkship.

Amy S. Colwell MD (Plastic and Reconstructive Surgery) received a Best Paper Award from the open access journal, Plastic and Reconstructive Surgery—Global Open, in the category of Best International Collaboration —Silver for her paper, Tissue Reinforcement in Implant-Based Breast Reconstruction, co-authored with Dr. Michael Scheflan from the Assuta and Herzlia Medical Centers, Tel Aviv, Israel.

Peter J. Fagenholz MD (Trauma, Emergency Surgery and Surgical Critical Care) received the Teaching Award from the MGH residents.

Irving Ling MD, a surgical resident, won the Joseph Murray Award for Best Resident Paper at the New England Society of Plastic Surgery Meeting.

Matthew M. Hutter MD (General and Gastrointestinal Surgery) was awarded $2.6 M from the non-profit Patient Centered Outcomes Research Institute (pcori) headquartered in Washington, DC. The study, titled Comparative Effectiveness of Metabolic and Bariatric Surgery Using Patient Reported Outcome Measures (PROMs), will be conducted over four years and will address the comparative benefits of three surgical procedures used to treat individuals with nutritional and metabolic disorders: bypass, sleeve, and band. Importantly, the study will aid patients and doctors to determine which of the three operations will deliver the best result for a particular patient based on the characteristics and natural history of the patient’s disease.

Taibo Li, an undergraduate engineering student at MIT, who works part-time as a research assistant in Dr. Kasper Lage Hansen’s lab at MGH, has received the Henry Ford II Scholar Award from the MIT School of Engineering. This award is given to the undergraduate who achieves the highest academic standing at MIT after his/her 2nd or 3rd year.

Eric Liao MD PhD (Center for Regenerative Medicine) was awarded two major grants from the NIH this year – a U01 FaceBase project and a PO1 functional genomics project. His fellows continue to present their work at national meetings (over 15 presentations in 2015). Dr. Liao also was ap-
pointed Fellow of the Society of University Surgeons and American Association of Plastic Surgeons.

Andrew Loehrer MD, a general surgery resident in the Codman Center for Clinical Effectiveness, received the American College of Surgeons Excellence in Research Award for his abstract, Healthcare Reform and Equality in Bariatric Surgery: Does Increased Access to Care Mitigate Disparities?

Harald C. Ott MD (Center for Regenerative Medicine) received the Paper of the Year Award at the New England Surgical Society for his paper, Regeneration and Orthotopic Transplantation of a Bioartificial Lung.

Invited Lectures and Presentations

Roy Phitayakorn MD (General and GI Surgery) chaired the Surgical Education: Principles and Practice course at the American College of Surgeons meeting in Chicago, IL.

Peers in Press

Selected publications (listed by division) between June 15, 2015 and October 15, 2015 with active links to PubMed.

Burn Surgery


Cardiac Surgery


General /GI Surgery


Laryngeal Surgery


Pediatric Surgery


Peers in Press

Plastic Surgery


Surgical Oncology


Thoracic


Transplant


Trauma, Emergency Surgery and Surgical Critical Care


Vascular


Surgical Oncology


Thoracic


Transplant

**Ether Day Luncheon Celebrates Long-time Employees**

Dr. Keith Lillemoe recognized long-time Department of Surgery employees at the Annual Ether Day Luncheon held on October 15, 2015, in the Sweet Room.

*Left to right:* Brenda Smith (30 yrs), Catherine Sundback (15 yrs), Christene Huang (20 yrs), Brian Fuchs (10 yrs), Marc de Moya (10 yrs), Keith Lillemoe (Chief), W. Gerald Austen (60 yrs), Ann Prestipino (35 yrs), Thomas Cochran (15 yrs), Matthew Hutter (20 yrs).

**Calendar**

**2015 Meetings**

**Surgical Research Council (SRC)**
Sweet Conference Room (GRB 432)
Monday, November 9, 2015, 5:00 p.m.

**Department of Surgery Staff Meeting**
Sweet Conference Room (GRB 432)
Wednesday, December 16, 2015, 7:00 a.m.

**2016 Meetings**

**Research Town Hall Meeting**
Simches Large Conference Room #311
Monday, January 11, 2016, 5:00 p.m.

**Surgical Research Council (SRC)**
Thier 1 Conference Room
Monday, April 4, 2016, 5:00 p.m.

**Surgical Research Council (SRC)**
Thier 1 Conference Room
Monday, August 8, 2016, 5:00 p.m.

**Surgical Research Council (SRC)**
Thier 1 Conference Room
Monday, November 7, 2016, 5:00 p.m.

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**Send us your news!**

We appreciate your input regarding important milestones of staff and faculty achievement, vital department statistics, demographics, scholarly publications, and reports of important clinical, research, and educational initiatives. Please send your news to kwilliams12@partners.org.

While we do our best to maintain the distribution list for all staff in the Department of Surgery, we appreciate your help in letting us know of people who need to be added to or deleted from this list. Please feel free to share the newsletter with any staff we may have missed in this distribution.

*Surgery News* is also available on the Department’s intranet site: https://intranet.massgeneral.org/surgery/admin/

Keith D. Lillemoe, MD, Editor in Chief; Ann S. Adams, Editor and Contributing Writer