

# SURGERY

## *Synopsis*

### Chairman's Message



Carlos A. Pellegrini, MD,  
FACS, FRCSI (Hon.)  
The Henry N. Harkins  
Professor & Chair

**F**riends & Colleagues of the Department of Surgery: In the spring months, I am privileged to hold a series of “Breakfasts with the Chair” events. These breakfasts bring together faculty by rank and have replaced the “all faculty” meetings that were the norm for years. We have been using this format for four or five years now and have found them to be well-attended and more meaningful to faculty (as well as myself) than were the traditional all-faculty meetings.

The format is simple: along with breakfast, we ask each individual to spend two minutes telling the group: “What is going well in the Department and in my professional life;” and “What issue is of particular concern or what challenges am I facing in my professional life.” I have learned a lot from these conversations and it is information that helps to inform our leadership team as we create together a Department committed to Excellence.

This year, from the “Working Well” side of the conversation and across all ranks, faculty felt they had: 1) great colleagues to work

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### Bright Future for Cardiothoracic Surgery in the UW System

**T**he Division of Cardiothoracic (CT) Surgery is divided into three Sections that overlap, interconnect, and complement each other: Adult Cardiac Surgery, Pediatric Cardiac Surgery (also known as Congenital Heart Surgery) and General Thoracic Surgery are distinct subspecialties emanating from a common training and board certification in cardiothoracic surgery. The faculty in these areas each work with other specialties that interconnect and require an immense amount of cooperation and coordination. While it may appear complicated from an administrative point of view, these faculty know exactly what is expected of them and how to do it when caring for the patient.

Department of Surgery Cardiothoracic Division faculty

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# Bright Future for Cardiothoracic Surgery in the UW System

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We invite you to read about groundbreaking clinical care; clinical research leading to innovative therapies; outcomes and health system research as well as basic and translational research; and the outstanding residency training program – spread across five campuses and involving some of the most brilliant faculty practicing in CT Surgery today. These programs, places and people comprise the world-class Division of Cardiothoracic Surgery.

## Cardiac Surgery

Fifteen years ago, the future of cardiac surgery looked gloomy. Advances in technology resulted in less-invasive procedures becoming more common and popular from a patient point of view. Stents, performed by specialized cardiologists, were used instead of the standard surgical approach – [Coronary Artery By-Pass Graft \(CABG\)](#). CABG had previously been the only real recourse for many patients and were the mainstay of cardiac surgery, yet threatened to be replaced by percutaneous procedures.

In addition to these widespread changes, in 1999 [UW Medicine](#) lost the Group Health cardiac care contract, dramatically decreasing volume. Cardiac surgery at UWMC dropped from over 1,000 cases per year to approximately 500 per year, despite UW Cardiac Surgery's excellent risk-adjusted outcomes and reputation for clinical excellence and outstanding research.

Cardiac surgery leadership at the UW understood that these other modes of cardiac disease management were advances in the field and were here to stay. However, these new techniques did not address all problems that individuals with severe heart problems faced, and so UW Cardiac surgery also focused on services that only cardiac surgeons could provide. The sum

of these efforts has led to the resurgence and growth of clinical cardiac surgery volume at UWMC, and a renaissance in care for cardiac patients and the specialty on the national level.

Understanding that a new future needed to be carved out, the Cardiac faculty, led by Dr. [Edward Verrier](#), Professor (*pictured top right*), and Dr. [Gabriel Aldea](#), Professor (*pictured bottom right*), Division of Cardiothoracic Surgery, determined a course of action they called “responsible innovation.” Their guiding principle was to carefully assess new technologies, providing at UW only those that:

- Fit with the UW institutional and faculty profile and culture;
- Were based on clinical expertise and outstanding risk-adjusted outcomes;
- Aligned clinical, academic and financial incentives.

With this principle in mind they set about creating the cardiac service of the future. They focused efforts on:

- Collaborating with the community in order to establish relationships with independent cardiology groups and, by starting two new community based programs at Harrison Memorial Hospital and Northwest Hospital,



increasing access to more routine surgery.

- Consolidating quaternary regional care at UWMC (including ventricular assist device (VAD) and Transplant, aortic pathology and complex valve interventions);
- Expanding the spectrum of care with new technologies that treated acute, complex cases.

They realized this plan would take time and resources to mature and advance. The Department saw the long-term wisdom of this and was able to provide the time and resources to support growth and development of the plan.

The investment has paid off.

Based on the work that had gone before, the UW Medicine Cardiac Surgery program was poised to grow and develop. And, it has. These changes have resulted in a 70% growth in cardiac surgery volume at UW, and renewed optimism and excitement exists for cardiac surgery.

We present to you some of the emerging and evolving treatments in cardiac care that UW Medicine's team have helped to make the gold standard of cardiac care.

“Based on the work that had gone before, the UW Medicine Cardiac Surgery program was poised to grow and develop. And, it has. These changes have resulted in a 70% growth in cardiac surgery volume at UW, and renewed optimism and excitement exists for cardiac surgery.”

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# Bright Future for Cardiothoracic Surgery in the UW System

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## New Paradigms of Cardiac Care

### Cardiac Valve Disease: Innovative Therapies

Cardiac valve disease has a prevalence of 5% that increases dramatically with age to over 12% by the age of 75 years. Along with coronary artery disease it represents a leading cause of disability, hospitalization, morbidity and death in the U.S. Many of these elderly patients have significant medical co-morbidities that make them either inoperable or high-risk for even the most modern open cardiac surgical interventions. Until recently there has been little in the way of successful therapies other than surgery for this condition.

UWMC was one of four institutions that led the evolution of alternative minimally invasive, catheter-based therapies for aortic stenosis in the US. [Transcatheter Aortic Valve Replacement \(TAVR\)](#) is original and cutting edge for multiple reasons. First, it requires unprecedented collaboration and full integration of multiple cardiovascular specialties into one unified heart team. Collaboration is absolutely essential in order to fully assess and treat each patient by simultaneously offering unique and complementary skill sets. TAVR offers a catheter-based intervention by an experienced team that is comprised of a cardiac surgeon, an interventional cardiologist and a cardiac anesthesiologist. This minimally invasive procedure is performed through a 5 mm incision and addresses both native and prosthetic valve dysfunction.

Equally unique has been the rapidity with which the research and new technology was assessed and introduced. Because of the rigorous study design, thoughtful implementation and careful monitoring of these evolving technologies (fully coordinated and led by the surgical and cardiology specialty societies, industry and the [U.S. Food and Drug Administration \(FDA\)](#), this family of therapies has evolved from the experimental to “clinically approved” phase within 2 years with ever expanding indications and possibilities.

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## Dr. Verrier's Role in Reigniting CT Surgery

When Dr. [Ed Verrier](#), Professor, Division of Cardiothoracic Surgery (*pictured right*), took over as cardiothoracic division chief in 1989, cardiac surgery was clinically strong, but other parts of the division needed help: there was little thoracic surgery occurring, educational programs needed more focused attention, research activity was minimal, and the division lacked a strong presence at other sites. During his tenure as chief, Dr. Verrier made a number of changes that brought significant improvements to each of these areas.



Academics and research were perhaps the easiest fixes, as Dr. Verrier came to UW with funding from the National Institutes of Health, which helped him recruit superior faculty and lay the foundation for a stronger academic culture. Improving the division's education program was more difficult – at the time the residency program served primarily as a service to run the coronary bypass surgery machine. Dr. Verrier focused on developing the educational skills of the faculty, assuming the role of both mentor and model for a dedicated surgical educator. He also encouraged faculty to take on leadership positions in the ACGME and the American Board of Thoracic Surgery. [Mike Mulligan](#) (*pictured top left*), [Ed Verrier](#), and [Doug Wood](#) (*pictured bottom left*) have subsequently earned national recognition as resident educators, and CT faculty continue to expand their leadership roles in state and national organizations. Finally, Dr. Verrier helped create the Visiting Scholar in Cardiothoracic Surgery, an annual event featuring clinical and research presentations, and which provides residents and fellows the opportunity to interact with distinguished faculty from other institutions.

The need to strengthen the thoracic program was driven by the growing need for multidisciplinary teams to tackle lung transplants and lung volume reductions. [Ed Verrier](#) recruited [Doug Wood](#) to develop the program. Since then, it has grown from 110 thoracic cases per year to 1,500 cases per year, and the faculty from two to six thoracic surgeons.

Dr. Verrier also sought to improve CT's presence at other sites. At the VA, for example, lower pay scales and a perception of VA clinicians as second-class citizens made it difficult to establish consistent care for VA patients. Dr. Verrier created contracts for equitable faculty pay and established longer resident rotations there. At SCH, a small, private cardiac and cardiology service run by Providence Health System was successfully transitioned to UW leadership, and SCH now has four dedicated congenital surgeons.

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## Bright Future for Cardiothoracic Surgery in the UW System

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The results are nothing short of spectacular. Despite patients' age (mostly in their 80s and 90s) the length of hospital stay has been reduced to 2–3 days from a previous 6–10 days, with full resumption of all physical activities and no restrictions.

Because the cardiac program at UW devoted time, resources and expertise to changing the landscape for people with cardiac valve disease, UW Medicine's Regional Heart Program is currently one of the top 5 busiest, most innovative and collaborative structural heart disease programs in the nation. The success of this program is made possible by the enormous efforts of a team of over 50 dedicated specialists under the leadership of [Gabriel Aldea, MD](#) (Chief of Adult Cardiac Surgery) (*pictured on page 3*), [Mark Reisman, MD](#) (Chief of Interventional Cardiology), [Burkhard Mackensen, MD](#) (Chief of CT Anesthesia) and [Liz Perpetua, ACP, PhD](#) (Director Structural Heart Disease and Evolving Technologies).



Reisman



Mackensen



Perpetua

The program has grown from 20 patients per year to a volume of over 300 patients per year in 2015, and TAVR now represents the single most common isolated surgical heart procedure

By the time Dr. Verrier stepped down as chief in 2009, CT Surgery at UW had become a locally dominant and nationally prominent division. Its faculty were participating in major national clinical trials, were effective advocates for shaping national policy, and its young surgeons benefited from training in a well-balanced program that was equally strong in both adult and congenital cardiac and thoracic surgery across multiple sites. Along the way, Dr. Verrier worked to help CT "become a family," and he credits the hard work of all in the division for CT's successes.

### Doug Wood, Successful Advocate for Breakthrough Lung Cancer Screening

Every year, more people die from lung cancer than breast, pancreatic or colon cancers combined, in part because it is difficult to detect at early, curable stages. Whereas a palpable lump might provide early indication of breast cancer, there is nothing in the anatomy of the lungs that allows for a similar discovery of a mass in the lungs. Yet until recently lung cancer screening has not been covered by private insurers or Medicare. For the last several years, Dr. [Doug Wood](#) has led an uphill battle to change this policy, which culminated on January 1, 2015 with coverage required under the Affordable Care Act for privately insured patients and the announcement of the National Coverage Determination on February 5, 2015 that Medicare will now also provide coverage for these important screenings. Dr. Wood chaired the National Comprehensive Cancer Network Lung Cancer Screening Panel, which became the first U.S. group to recommend lung-cancer screenings based on the results of a 2011 screening study that showed a 20% decrease in mortality for lung cancer patients. The group collaborated with other national organizations to educate policy makers about the benefits of lung cancer screening, and in 2013 Dr. Wood testified before a U.S. Senate briefing to further advocate for their coverage.

Dr. Wood's work on this issue was recently highlighted in [UW HSNewsBeat](#). The article noted that the cure rate of lung cancer patients at all stages is currently only 16%, but if lung cancer is identified early that cure rate rises to 70–80%. Furthermore, patients seen in lung cancer screening programs have an 80–85% chance for a cure. This change in Medicare coverage will have a potential impact of up to 20,000 lives saved per year. No chemotherapy or surgical advances have the potential to impact cancer patients in this way. Of the February 5th announcement, Dr. Wood told HSNewsBeat, "This was one of the greatest days of my life. Nothing I've done professionally has had nearly the impact. This literally has the potential of saving tens of thousands of lives each year."



Dr. Doug Wood testifies at a U.S. Senate briefing in 2013.  
Photo courtesy of Lung Cancer Alliance.

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performed at UWMC. The team is about to celebrate its 500th TAVR implant and is currently participating in four national clinical trials of the newest device options that advance this therapy to lower risk patients.

To this spectrum, the team has added the ability to repair leaky (regurgitant) mitral valves in inoperable/high risk patients with the MitraClip device, and soon will be one of only three national sites to implant catheter prosthetic mitral valves.

The team is rightfully proud of the careful, strategic, and collaborative approach that has made this spectrum of therapies such a success.

## Evolution of Advanced Heart Failure Program

More than five million people in the United States are currently living with congestive heart failure (CHF), and another 550,000 are diagnosed each year. As Baby Boomers age, those numbers are expected to grow. Over the last several decades, the prevailing therapy for heart failure has evolved considerably with expansion of medical therapy, growth of heart transplantation, and the mainstream application of mechanical circulatory support (MCS).

Like many other programs, an advanced heart failure program requires a multidisciplinary approach to disease. Over the last 10 years in particular, the [UW Advanced Heart Failure Program](#) has blossomed. The surgical team, under the leadership of Dr. [Nahush Mokadam](#), Associate Professor, Division of Cardiothoracic Surgery, includes all members of the cardiac surgery section, but is a focus of the clinical practices of Drs. [Nahush Mokadam](#), [Jason Smith](#), Assistant Professor, and [Jay Pal](#), Assistant Professor, Division of Cardiothoracic Surgery. Additionally, key partnership with the Heart Failure Cardiology team is essential. This team is led by [Dan Fishbein, MD](#) and [Claudius Mahr, DO](#). They lead Heart Transplant and MCS respectively and their combined team includes six other cardiologists. Further support for the program is provided by transplant and MCS coordinators, advanced



Mokadam



Smith



Pal

practitioners, administrators, and support staff. Together, the current team includes more than 50 members!

The first heart transplant was performed at UW by Dr. Margaret Allen on November 18, 1985. Since that time, the Advanced Heart Failure team has performed more than 650 heart transplants, and in 2014 alone the group performed 38 heart transplants; more than any year previously. The UW has a median heart transplant survival of more than 15 years; among the best in the country. Additionally, due to the geography and relatively low population density of the region, the team has extensive experience in the fairly unique management of long ischemic times.

The MCS program at UW first began in 1997 under the leadership of Dr. [Edward Verrier](#) and is now under the surgical leadership of Dr. [Nahush Mokadam](#). The program has implanted more than 450 devices for the treatment of advanced heart failure. In the last 20 years, they have introduced “Destination Therapy,” which means that patients receive a left ventricular assist device (LVAD) and a planned permanent treatment, without the intent of subsequent transplant.

More recently, the MCS team began implanting Total Artificial Hearts for patients with severe biventricular failure and using Extracorporeal Life Support (ECLS) for patients with acute cardiopulmonary failure. These technologies have fundamentally changed how we manage advanced heart failure in both the short and long term. They are already producing remarkable results and hold immense promise.

By the end of 2015, it is anticipated this team will have implanted more than 100 patients with these devices, making UW one of the busiest programs in the country.

## Clinical Research Drives Innovation in Cardiac Care

The Division of Cardiothoracic Surgery has historically had a strong research infrastructure. This has been conducive to participation in key clinical trials, collaborations with



Fishbein



Mahr

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bioengineers, and elevation of its national and international reputation through significant publications.

One major area of inquiry is mechanical circulatory support with left ventricular assist devices. As noted above, these devices serve as a bridge to cardiac transplantation and have become an important therapy for patients in advanced stage heart failure. Dr. [Nahush Mokadam](#) is currently involved in several studies evaluating various aspects of these devices.

In the near future, Dr. [Jason Smith](#) will begin a trial to evaluate the effectiveness of the OCST™ Heart, a portable heart perfusion system to be used to procure, preserve and assess donor hearts that may not meet current standard donor heart acceptance criteria for transplantation.

Looking to the future, the specialty can anticipate advances in device design that will promote minimally invasive implantation, improved biocompatibility, and prolonged durability. The ultimate goal is to achieve a real competitor for heart transplant, an achievement that appears to be very near. These efforts are a result of the exceptional level of dedication and commitment of the entire multidisciplinary team. It is truly among the best in the world.

### Congenital Cardiac Surgery Program at SCH and Pushing Through to Adulthood

The Congenital Cardiac Surgery program has enjoyed considerable growth in

the past two years. The arrival of Dr. [Jonathan Chen](#), Professor, as Chief of that service and Chief of Pediatric Cardiac Surgery at [Seattle Children's Hospital \(SCH\)](#), together with his stalwart partners, Drs. [Lester Permut](#), Associate Professor, Pediatric Surgery Division, [Mike McMullan](#), Associate Professor, Pediatric Surgery Division and [Muhammad Nuri](#), Associate Professor, Cardiothoracic Surgery Division, have provided just the right conditions for growth and

Last year the congenital team was pleased to recruit Dr. [Muhammad Nuri](#), Site Chief at the Mary Bridge location, and Dr. [Joshua Hermsen](#), Assistant Professor and the Associate Surgical Director of the [Adult Congenital Heart Disease Program](#) at UW.

The team leads in the area of pediatric mechanical circulatory support and ventricular assist device design and implementation. In particular,

#### [extracorporeal membrane oxygenation \(ECMO\)](#)

([ECMO](#)) has become a fully developed program and now boasts a fellowship directed by Dr. [McMullan](#).

Members of the pediatric congenital team hold prominent national leadership roles in the areas of ECMO (Dr. [Mike McMullan](#), Extracorporeal Life Support Organization) and transplantation (Dr. [Jonathan Chen](#), United Network for Organ Sharing).

The heart transplant program at SCH is among the top five busiest in the nation. This group was also among the first to develop an [Accreditation Council for Graduate Medical Education \(ACGME\)](#) approved fellowship in congenital cardiac surgery in which Fawwaz Shah, MD, 2015 graduating cardiothoracic fellow at UW, will be the next participant.

The group's current research interests include:

- Clinical and experimental investigations related to ECMO;

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From left to right: Drs. Joshua Hermsen, Sophia Horn (Congenital Fellow), Mike McMullan, Muhammad Nuri, Jonathan Chen and Lester Permut.  
Photo credit: Erik Stuhaug/Seattle Children's Hospital

development. In the last year, the regional pediatric congenital program performed 500 operations.

Dr. [Ed Verrier's](#) leadership led to the creation of the adult congenital care program, which brings a vital focus and bridge to the needs of patients with congenital heart problems as they grow from childhood to adulthood. The adult program has now performed close to 100 adult congenital cases at UWMC.

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- Mechanisms of neuroprotection for pediatric deep hypothermic circulatory arrest;
- Stem cell scaffold design to evaluate potential for valve growth;
- The development of three dimensional heart models as a tool for preoperative planning and resident education;
- Mechanical circulatory support and transplantation remain a target of clinical research because of the group's clinical interest.

In the future, the team hopes to have a better understanding of the mechanisms and treatments for pediatric heart failure; pediatric neuroprotection, both short and long-term, as it relates to refinement of surgical techniques; and strategies to account for somatic growth and maturation as it relates both to the field and toward the transition to adulthood.

### Development of the Cardiothoracic Surgical ICU

A development beneficial to both cardiac and thoracic patients has been the Cardiothoracic Surgical ICU. Many CT programs delegate post-operative care to traditional intensive care units (ICUs) or coronary care units, but in doing so they lose the benefit of surgical oversight and cardiothoracic expertise in the management of these critically ill patients. Yet the traditional model of direct surgical care of postoperative patients was increasingly compromised by advancing technology and acuity, as well as the competition and distraction of operating while caring for sick patients in the ICU. The UW CT faculty felt strongly that surgical expertise and continuity were needed in order to achieve the best outcomes for their ICU patients and a plan emerged for a Surgical Intensive Care Unit managed by Cardiothoracic Surgery and Cardiothoracic Anesthesia, with specially trained clinicians devoted to the 24/7 care of complex cardiothoracic surgery patients.

This unique model was developed by Drs. [Doug Wood](#), Professor and Chief of the Division of Cardiothoracic Surgery, and [Andrew Bowdle](#), Professor in the Department of Anesthesiology & Pain Medicine, and is co-directed by Drs. [Aaron Cheng](#), Assistant Professor, Division of Cardiothoracic Surgery (*pictured right*), and [Peter Von Homeyer](#), Assistant Professor in the Department of Anesthesiology & Pain Medicine. The Surgical CT ICU has been very successful, demonstrating improved

outcomes and increased levels of patient satisfaction. An important element of this success has been the establishment of the critical role of the Advanced Practice Providers (APPs). These dedicated and highly skilled practitioners play a vital role in assuring continuity and quality of care. The CT Surgical ICU plays an important role in education as well, with the first CT Surgical ICU fellowship in the U.S. dedicated to the specific training of CT intensivists.

**“The Surgical CT ICU has been very successful, demonstrating improved outcomes and increased levels of patient satisfaction. An important element of this success has been the establishment of the critical role of the Advanced Practice Providers (APPs). These dedicated and highly skilled practitioners play a vital role in assuring continuity and quality of care.”**

### Significant Developments in Thoracic Surgery

In 1991, UW thoracic surgeons performed 110 operations. By 1996, that had increased to over 1,000, and for the past 10 years the section of general thoracic surgery has performed over 1,400 procedures, with 900 of those occurring at UWMC. The UW thoracic surgery service is now the largest in the western US with faculty expertise in the widest diversity of procedures available today.

Dr. [Douglas Wood](#) (*pictured right*) was recruited from Massachusetts General Hospital in Boston to become the Chief of a new Section of General Thoracic Surgery in 1992 “to establish and develop the thoracic surgical activities at UWMC, HMC and the VA to a level of national



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stature." Under his leadership, this has been accomplished. Dr. Wood grew the clinical programs in the 1990s, adding important and influential faculty as the program grew, and setting the foundation for resident education and clinical research in thoracic surgery.



One of Dr. Wood's biggest successes was the 1999 recruitment of Dr. [Michael Mulligan](#), Professor, Division of Cardiothoracic Surgery (*pictured left*), from the University of Michigan. Dr. [Mulligan](#) assumed leadership of the section of general thoracic surgery in 2010 and thoracic surgery has continued to develop and flourish under his leadership. Dr.

[Mulligan](#) is passionate about his work. As he says, "You have to be passionate about what you do. You can be good at it, but if you aren't passionate about it you don't bring the same level of care to your patients." Dr. [Mulligan](#) is also the Director of the Surgical End Stage Lung Disease Program and the Director of Minimally Invasive Thoracic Surgery.

## Lung Transplantation

One of the principal goals of Dr. Wood's recruitment was to establish a new lung transplant program based at UWMC. Under Dr. Wood's leadership, the program thrived and grew, but so had all of thoracic surgery. Growth made it hard to provide the necessary focus and dedication for the lung transplant program's continued development. Dr. [Mulligan](#) was recruited to assume the leadership of the lung transplant program, and he has further built the program. It is now one of the largest and most successful programs in the country. Lung transplantation achieved an enormously important milestone with the development of the VA lung transplant program, only the second in the US.

## Lung-Volume-Reduction Surgery

Lung-Volume-Reduction surgery (LVRS), a surgical treatment for emphysema, was initiated at the UW by Dr. [Wood](#) in 1994, and UWMC was one of the pioneering sites for this new therapy. The National Emphysema Treatment Trial (NETT) was a landmark study of LVRS, for the first time merging the support and resources of the Centers for Medicare and Medicaid Services (CMS) with the National Heart Lung and Blood Institute (NHLBI) in a prospective, randomized trial of a major new surgical procedure.

Dr. [Wood](#) was one of the national leaders in this trial that culminated in landmark papers in *The New England Journal of Medicine* and the development of national coverage policy for LVRS. In addition, the Agency for Health Research and Quality (AHRQ) sponsored a cost-effectiveness analysis of LVRS; the largest cost-effectiveness study ever performed in a clinical study. Dr. [Wood](#) was the primary NETT clinician involved in the cost-effectiveness study and subsequently worked directly with the CMS officials in developing the national coverage determinations for LVRS and site selection criteria. The UW thoracic program has the most LVRS experience in the country, and the highest current volume of these surgeries, with approximately 25 procedures performed per year.

## Thoracic Surgical Oncology

All the thoracic surgeons within the UW Division of CT Surgery are involved in the thoracic oncology program. Like all of the cancer treatments at UW Medicine, the thoracic program is highly collaborative, encompassing medical and radiation oncology, pulmonary medicine, thoracic radiology, and pathology, as well as thoracic surgery across the UW Medicine and SCCA systems. Dr. [Wood's](#) clinical focus is lung, esophageal, mediastinal and airway tumors, with a particular interest in extended, complex operations for locally advanced lung cancer. Dr. [Mulligan](#) has developed national expertise in minimally invasive thoracic surgery and provides a high quality of minimally invasive surgery for patients with lung or mediastinal tumors.

Dr. [Leah Backhus](#), Associate Professor, Division of Cardiothoracic Surgery (*pictured bottom left*), has been the full-time thoracic surgeon for the VA system. She is leaving UW in July and has accepted a position to return to Stanford University, her alma mater, to work in the VA system in California. Dr. [Thomas Varghese](#), Associate Professor, Division of Cardiothoracic Surgery (*pictured bottom right*), has been the director of the thoracic surgery program at Harborview Medical Center. He has accepted a position as Thoracic Surgery Chief at the University of Utah



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and will be leaving in July. They go on to pursue professional and personal goals in their new roles. They have added a lot to the program in their years here and will be missed. We wish them well. As their parting gift to Surgery Synopsis, they have written "reflections" of their time here, which can be found on page 11.

Dr. [Aaron Cheng](#), in addition to his role as co-director of the Cardiothoracic Surgical ICU, manages a large variety of complex thoracic surgery consults and benign and malignant pleural pathology, and will be filling in at HMC as Dr. Varghese leaves for Utah. Dr. [Farhood](#)

[Farjah](#), Assistant Professor, Division of Cardiothoracic Surgery (*pictured right*), along with his significant research focus on delivery of care to lung cancer patients, focuses clinically on minimally invasive thoracic surgery, including lung and esophageal cancer surgery.



Thoracic oncology is a banner program in the UW system. The thoracic oncology program is looked to as a leader in the UW/SCCA cancer programs in the development of clinical pathways, growth of clinical trials and cohesive engagement of true multi-disciplinary teams.

Research by faculty in this area is innovative and leading to exciting breakthroughs. Success rates of the thoracic oncology program has led the Seattle community, and the larger Pacific Northwest community, to view UW as the place to go for major tertiary and quaternary complex surgeries for conditions that otherwise might be considered inoperable.

### Airway Pathology and Management

UW's thoracic surgery team have both interest and expertise in airway (tracheobronchial) pathology. Only a handful of specialists in the country perform complex tracheobronchial resection and reconstruction, and UW has the major airway surgery program in the western United States. Dr. [Wood](#) originally developed a large interventional bronchoscopy program that complements the surgical airway program at UW, and this has been further

augmented by Dr. [Mulligan's](#) use of airway interventions to support patients with bronchomalacia or stenosis after lung transplantation. UW Thoracic surgeons receive referrals for these procedures from throughout the western US, making it the largest program in the country. This interest in bronchoscopic intervention and surgical therapy for emphysema has served as the basis for Dr. [Wood's](#) involvement in the evaluation of endobronchial therapy for emphysema. He is one of the principal investigators of the Spiration IBV™ clinical trial, which is evaluating the effectiveness of endobronchial valves for the palliation of severe emphysema.

### Thoracic Research

In addition to his clinical and administrative work, Dr. [Mulligan](#) is a researcher with an R01 grant from the National Institutes of Health, and he maintains a lab in the Center for Lung Biology (UW's research complex in the South Lake Union facilities) that combines basic and translational research. His research is focused on understanding the mechanisms of lung ischemia reperfusion injury and then developing novel therapies for its prevention.

Dr. [Mulligan](#) is also conducting a trial to examine the effectiveness of a system for better preserving donated lungs that do not initially meet the standard criteria for lung transplantation. These donated lungs may actually be transplantable if there is more time to observe and evaluate the organ's function. This

technology has the potential to dramatically increase the donor pool by allowing the safe transplantation of initially unacceptable donor lungs.

“UW’s thoracic surgery team have both interest and expertise in airway (tracheobronchial) pathology. Only a handful of specialists in the country perform complex tracheobronchial resection and reconstruction, and UW has the major airway surgery program in the western United States.”

Dr. [Farjah](#) is a clinical epidemiologist and health services researcher with an interest in improving healthcare delivery and outcomes for individuals at-risk for or diagnosed with lung cancer. One of his primary goals is to better understand the utilization, outcomes,

and value of diagnostic modalities used in screening, staging, and/or surveillance. He is also working to develop, validate, and implement risk-prediction models as a means of optimizing the performance and value of diagnostic tests and personalizing cancer care. Read more about his work on page 17.

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## Cardiothoracic Education

UW is the sole cardiothoracic residency training program in the nation featuring a traditional two-year fellowship, six-year integrated residency, 4/3 joint training program with general surgery, CT ICU fellowship, and congenital fellowship training programs. Graduates have gone on to develop and lead major programs both regionally and nationally.

The UW program is considered one of, if not the leading CT residency program in the country and is highly sought after by medical school applicants for the integrated residency, and finishing general surgery residents applying to the traditional residency program. The decision to create a six-year integrated residency program represented a paradigm shift for the specialty, admitting first year residents for a concentrated path into cardiothoracic surgery over six years. This program has benefited from close links to the other surgery training programs in the Department of Surgery in general surgery, vascular surgery, and plastic surgery. CT faculty have often expressed that they are privileged to train the best residents in the country.

After stepping down as Chief, [Ed Verrier](#) has continued his leadership role in resident education, and is now Surgical Director of Education for the [Joint Council on Thoracic Surgery Education](#) (JCTSE). In this role he is developing a new Learning Management System with plans for global development.

## Excited for the Future

The Division has benefitted enormously from the trust and support of the Department of Surgery. Without the vision and guidance of Dr. [Carlos Pellegrini's](#) leadership – his strong advocacy at the School level, and his infectious confidence in the Division's ability to become the powerhouse it is today – the Division might have languished when it faced its most significant challenges.

The CT program's excellence is not due to one or two superstar individuals, but rather its diverse and talented team – including strong collaboration with faculty in other divisions such as Cardiology and Vascular and General Surgery – who have cared for the thousands of patients presenting with cardiac and thoracic disease. And it is due to a unique culture of respect, engagement, and cohesiveness of a team that sincerely likes and appreciates the people that they work with each day. A focus on education keeps CT Surgery fresh and innovative, and a focus on patient-centered care keeps them grounded in the mission of why they do what they do – "To Make Tomorrows Possible."

## REFLECTIONS

**Dr. Leah Backhus,  
Associate Professor,  
Division of  
Cardiothoracic Surgery**



"This summer I will be leaving the University of Washington and the Department of Surgery to take a position at Stanford University. Transitioning from residency training into practice and academia can be challenging, however, my six years here have been filled with formative experiences that have paved the path to my next pursuits. I have grown tremendously as a surgeon, educator, and research scientist, and it has been an honor to have been a part of such an elite group of professionals in a department with such a rich surgical history. I have benefited greatly from the mentorship of [Carlos Pellegrini](#), [Douglas Wood](#), [Michael Mulligan](#), and [David Flum](#). They provided the perfect balance of independence, guidance, and challenges that helped me successfully navigate the transition from trainee to faculty. I am forever grateful for their trust and encouragement. I have also benefited greatly from my own work as mentor and educator to our medical students, residents, and fellows. It has been extremely enjoyable and rewarding to work with trainees who are as enthusiastic as they are talented. Our residents have access to tremendous faculty and I am privileged to have played a small role in their training.

Additionally, I have enjoyed the opportunity to contribute to the changing cultural landscape within the School of Medicine. Under Dr. Pellegrini's leadership, the Department of Surgery has become an ardent advocate for diversity as a vital requisite for institutional excellence. Dr. Pellegrini has fostered a culture of inclusiveness, and he champions the growth and development of students, residents and faculty. In 2008, the UW hosted the Annual Meeting of the Society of Black Academic Surgeons (SBAS) and, four years later, I drafted a proposal to establish a standing scholarship to support attendance of our surgical trainees to SBAS. The proposal was accepted by Dr. Pellegrini and Department leaders, and to date we have supported four residents with

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## Bright Future for Cardiothoracic Surgery in the UW System

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### REFLECTIONS (cont.)

overwhelmingly positive feedback from both attendees and SBAS leadership. The Department's Diversity Council has continued this work, establishing a sub-internship for visiting medical students from diverse backgrounds to gain exposure to our top-tier institution. This year we will welcome the 2nd round of recipients for this award. I have also had the honor to work in promoting diversity within our faculty ranks by establishing the Committee on Minority Faculty Affairs, a Standing Committee through the Office of the Dean. I served as committee chair for three years, and was a member of the UW SOM Diversity Strategic Planning Committee. I am proud to have participated in these endeavors, and look forward to continued successes by the UW SOM in this area.

It is often quoted that more than half of physicians leave their first job within 5 years. In that regard, I am not very unique. However, I doubt that same 50% will look back as fondly as I will at their time spent in that job. My family and I will be returning to our home state of California and joining our extended family and friends. The position at Stanford University offers a great opportunity for continued professional growth for myself as well as my husband. I will also be returning to my alma mater and so, in a sense, I will have come full circle. I will miss Seattle (rain and all!) and the University of Washington. So, as I sit in my new surroundings wondering "exactly how long is this drought going to last...?" I know I will look at the framed picture of the Seattle skyline that I will hang in my new office and reflect fondly on my time here."

**Dr. Thomas K. Varghese, Jr.,  
Associate Professor,  
Division of  
Cardiothoracic Surgery**

Tales from the Front - A  
Reflection of My Time at UW

"It is the story of a tough and unique group of human beings who are committed to a vision of equality for the most vulnerable people in our society, a group who believes that everyone should



be treated equally and well, regardless of who they are."

- Dr. Audrey Young: 'The House of Hope and Fear: Life in a Big City Hospital'<sup>1</sup>

"The above quote is from the introductory chapter of Dr. Young's 2009 book of clinical vignettes from her internal medicine residency at Harborview. As I reflect upon my time as a faculty member, those words of wisdom stick with me, a creed that describes the mission throughout the UW Medicine system.

I joined the Division of Cardiothoracic Surgery at the University of Washington on July 9, 2007 - my first job as an Attending Surgeon after completing a Thoracic Surgery fellowship at the University of Michigan. I've directed the Thoracic Surgery service at Harborview since 2007 and performed thoracic surgical cases at Northwest Hospital since 2008. I've also had the unique privilege of having performed cases at the VA Puget Sound and UW Medical Center. One of my partners, Dr. [Nahush Mokadam](#), coined the term "inside the park homerun" to signify visiting all four campuses on one day. I can attest this is an experience like no other.

In the early days I often got lost in the Harborview's maze of twisting hallways and patient beds that constantly and consistently lined the walls of the ER. There were daily announcements over the intercom stating that Harborview was at "Purple Level - II," which I discovered meant we were over the patient bed limit with boarders in the ER.

As I complete eight years I have difficulty recalling a single day we weren't over capacity. That's not surprising as I also can't recall a time when any service has turned away a patient. "We'll figure it out" is an often-repeated phrase among staff.

The Harborview Norm Maleng Building opened in 2008, followed by the Ninth and Jefferson Building in 2009. These modern buildings are among the nicest that I've ever seen at a County hospital. Beyond opening of buildings and expansion of services these new buildings afforded, it's the remarkable patient stories that stick with me. Numerous esophageal perforations came through the system, such as the 'Sloppy Joe patient' who literally had his last meal of Sloppy Joe scooped out from the chest. I remember the 'Mexican Professional

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## Bright Future for Cardiothoracic Surgery in the UW System

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### REFLECTIONS (cont.)

Bull-Rider' who was thrown from the bull and stomped on, whose chest rib fractures needed surgical stabilization. From professional athletes to a professional sword-swallowing, we've treated them all. Can a bullet cross the mediastinum and somehow miss all the vital organs? Sure. Can another bullet cross the mediastinum and hit everything in between? Of course it can.

Patient encounters have influenced my own behavior. For instance, treating several patients who progressed from dental abscesses to descending cervical mediastinitis, has resulted in my own extra diligence with oral hygiene and dental check-ups.

Beyond the sometimes unbelievable stories, there's incredible teamwork that goes into the care of all these patients. I am eternally grateful to the team of anesthesiologists, nurses, scrub techs, surgeons and residents who tirelessly work and advocate for the health of these patients. The teams are stewards in the face of adversity. They persevere through late hours, multiple rounds, and reassurances to family members, even in situations where the outcomes were not the best. For surgical residents, many deeds they do occur outside of the limelight, and yet are the most critical for patient outcomes. 'Thoracic Caffeination Rounds' were a time I got to know and appreciate these remarkable young surgeons.

So what defines us - the residents, faculty and staff at the University of Washington? I believe it's an unshakable optimism and belief that together we can achieve much more than we can do alone. We have a connection to our patients throughout the WWAMI region, and a desire to always advance science. And finally, there is never-ending support given to me by my mentors, incredible models of leadership and vision abundant throughout the Department of Surgery.

As I advance to the next phase in my career, it is these traits that I've learned from all of you, and hope to carry forward in the years ahead."

### References

1. Young, Audrey. *The House of Hope and Fear: Life in a Big City Hospital*. Seattle, WA: Sasquatch Books, 2009.

## Save the Dates

### WASHINGTON AND OREGON STATE CHAPTERS OF THE ACS COMBINED ANNUAL MEETING

June 12-15, 2015

Suncadia Resore

Cle Elum, Washington

[www.wachapteracs.org](http://www.wachapteracs.org)

### AMERICAN COLLEGE OF SURGEONS CLINICAL CONGRESS

October 4-8, 2015

Chicago, IL

[www.facs.org/education/clinical-congress](http://www.facs.org/education/clinical-congress)

### HARKINS SOCIETY RECEPTION AT THE ACS

Tuesday, October 6, 2015

Chicago, IL

More information TBA

### 66TH ANNUAL ALFRED A. STRAUSS LECTURE

Friday, October 16, 2015

4:00pm, Hoggness Auditorium

Health Sciences Building

Room A-420

Speaker: Dr. Thomas M. Krummel

Emile Holman Professor and Chair, Department of Surgery

Director, Surgical Innovation Program

Stanford University School of Medicine

### HARKINS SURGICAL SYMPOSIUM

Friday, October 16, 2015

7:30am-2:00pm

UW Tower Auditorium

### 22ND ANNUAL HELEN & JOHN SCHILLING LECTURE

Friday, February 26, 2016

3:00pm, UW Tower

[Melina R. Kibbe, MD](#)

Professor of Surgery

Northwestern University

Please see the  
Department of Surgery's  
monthly Grand Rounds  
schedule under  
[Special Events](#) on our website:  
[www.uwsurgery.org](http://www.uwsurgery.org)