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SURGERY
BY THE NUMBERS

OVERALL SURGICAL CASE VOLUME

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2014</td>
<td>21,893</td>
</tr>
<tr>
<td>FY2015</td>
<td>22,719</td>
</tr>
<tr>
<td>FY2016</td>
<td>22,803</td>
</tr>
<tr>
<td>FY2017</td>
<td>23,056</td>
</tr>
<tr>
<td>FY2018</td>
<td>23,001</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>113,472</td>
</tr>
</tbody>
</table>

MOST COMMON PROCEDURES

- TOTAL KNEE ARTHROPLASTY: 1,258 cases
- TOTAL HIP ARTHROPLASTY: 856 cases
- 700 BARIATRIC CASES
- LAPAROSCOPIC APPENDECTOMY: 440 cases
- LAPAROSCOPIC CHOLECYSTECTOMY: 439 cases

SPECIALTIES WITH HIGHEST ACTIVITY

- GENERAL: 4,549 cases
- GYNECOLOGY: 2,890 cases
- THORACIC: 935 cases
- ORTHOPEDICS: 8,029 cases
- UROLOGY: 1,325 cases

NUMBER OF SURGEONS: 150
NUMBER OF ROBOTIC SURGERIES: 733
A MESSAGE FROM THE CHAIR
Welcome to the annual report from the Department of Surgery. I have the difficult task of summarizing our myriad achievements and activities of the past year in this very short space.

How to summarize the year we have had across the Department of Surgery? Happily, it doesn’t really fall to me to recount the myriad achievements of the past year. My task is more fraught. It is to try to highlight a few of those activities and accomplishments in this short space, recognizing that I could never do justice to them in their entirety. I trust you will be edified as you read through this report, the human-interest stories, the accomplishments and the data generated by the talented men and women who compose our Department of Surgery.

I could tell you of the continued clinical growth across most surgical programs, manifest in the need for expert management of OR utilization (under Dr. Zaidi our block utilization has increased to almost 88% vs. an “industry average” of 68%). We host programs within Orthopedics, MIS/General Surgery, and Surgical Oncology/Breast Surgery, to name a few, that are the largest in Maryland and the region.

I could tell you how the Department’s academic activity has again grown significantly in volume and influence over the past year (under the guidance of Dr. Lorraine Tafra, Associate Chair for Academic Affairs). Our surgeons and surgical trainees have made presentations at some of the most prestigious national and international meetings in their respective fields. Our Department-wide publications count (and impact) continues to steadily rise.

I will mention our excitement, pride (and perhaps relief!) regarding the successful launch of the first Graduate Medical Education program in the 120-plus-year history of Anne Arundel Medical Center (AAMC). We have completed our first year of the AAMC Surgical residency. Under Dr. Alex Gandas’ leadership, our three PGY1 and three PGY2 residents graduated to PGY2 and PGY3 levels, respectively. We also welcomed our new class of three PGY1 residents.

I do need to pause and highlight some of the efforts and successes of our relentless Surgical Quality program (led by Dr. Hanley). This past year we implemented more than 20 quality improvement projects across all surgical divisions. I am proud to report that we achieved American College of Surgeons NSQIP top decile quality performance — nationally across eight specialties and 29 measures. We expanded the ERAS program from its successful launch and focus around colorectal surgery to our breast reconstruction program.

Focusing as well on the local (and national) scourge of opioid abuse and addiction, we reduced opioid prescriptions and usage by 41% across targeted surgical procedures. As a department and working closely with our nursing colleagues we conceived, developed and implemented a surgeon self-reporting system including an “OR pause” process and a tailored app for quality self-reporting.

Such a glancing overview really does not do justice to the thoughtful, committed, patient-centered quality efforts by surgeons and anesthesiologists across this department.

Finally, as well as focusing internally on these important issues, we also looked “outward” to a significant degree this past year.

We hosted courses and conferences across multiple surgical specialties (Orthopedic, Bariatric, Hernia, Breast) that drew surgeons and allied health professionals to attend from around the region and even beyond. We also presented the 2nd Annual AAMC Conference on Physician Wellbeing (organized by Dr. Brooke Buckley), which attracted a large audience to hear local and national speakers — including the world’s leading authority on physician burnout, Dr. Tait Shanafelt.

So, without using any more ink or space, I will invite you to peruse the pages ahead to read in greater detail of the wonderful work being done in and through the AAMC Department of Surgery. It is my privilege to steward this effort.
QUALITY IMPROVEMENT
ENSURING OPTIMAL OUTCOMES

Under the leadership of Senior Associate Chair Robert Hanley, MD, the Department of Surgery has developed a multidimensional quality framework to ensure that we continually achieve optimal outcomes.

The framework includes medical staff peer review, service-level morbidity and mortality conferences, and a department-wide surgical services quality forum.

In 2017, we formed the Surgical Outcomes Steering Committee to monitor quality and facilitate quality improvement activities throughout the Department of Surgery. This group, which reports to Dr. Hanley, includes a multidisciplinary team of surgeon leaders, epidemiologists, infection control practitioners, nurses and administrators. In partnership with surgeon leaders from other departments, the committee has undertaken more than 20 quality improvement projects to date, including:

- Implementation of enhanced recovery protocols across colorectal, breast reconstruction and total joint replacement patients
- Surgeon and anesthesiologist representation on hospital-wide quality committees to prevent pneumonia, UTIs and readmissions
- Expansion of surgical site infection prevention protocols
- Reduction in opioid prescribing by more than 50% year over year
OUTPERFORMING NATIONAL QUALITY BENCHMARKS

In 2016, AAMC began participating in the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP). The ACS NSQIP is the first nationally validated, risk-adjusted, outcomes-based program to measure and improve the quality of surgical care. The program employs a prospective, peer-controlled, validated database to quantify 30-day risk-adjusted surgical outcomes, which allows valid comparison of outcomes among all hospitals in the program.

In FY2017 the Department of Surgery achieved the top decile “exemplary designation” across the following 29 measures:
## QUALITY IMPROVEMENT ACTIVITY

### NSQIP Semiannual Report January 2018 (Cases July 2016–June 2017)

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>RISK-ADJUSTED PREDICTED OBSERVED RATE</th>
<th>EXPECTED RATE (NATIONAL BENCHMARK)</th>
<th>DECILE</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Sepsis</td>
<td>0.48%</td>
<td>0.80%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Colorectal Sepsis</td>
<td>1.72%</td>
<td>2.28%</td>
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<td>Exemplary</td>
</tr>
<tr>
<td>Vascular Cardiac</td>
<td>1.27%</td>
<td>1.60%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Vascular Sepsis</td>
<td>1.01%</td>
<td>1.22%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Vascular Length of Stay</td>
<td>8.68%</td>
<td>12.10%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>All Cases Cardiac</td>
<td>0.20%</td>
<td>0.34%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>All Cases Sepsis</td>
<td>0.25%</td>
<td>0.48%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Gynecology Renal Failure</td>
<td>0.06%</td>
<td>0.06%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Gynecology C.diff Colitis</td>
<td>0.06%</td>
<td>0.07%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Gynecology Return to OR</td>
<td>1.04%</td>
<td>1.19%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Orthopedic Pneumonia</td>
<td>0.19%</td>
<td>0.25%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Orthopedic Ventilator &gt; 48 Hours</td>
<td>0.05%</td>
<td>0.06%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Orthopedic Sepsis</td>
<td>0.15%</td>
<td>0.21%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>ENT Mortality</td>
<td>0.15%</td>
<td>0.18%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>ENT Morbidity</td>
<td>1.65%</td>
<td>2.10%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>ENT Cardiac</td>
<td>0.11%</td>
<td>0.14%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>ENT Pneumonia</td>
<td>0.25%</td>
<td>0.29%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>ENT Unplanned Intubation</td>
<td>0.23%</td>
<td>0.26%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>ENT VTE</td>
<td>0.16%</td>
<td>0.17%</td>
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<td>Exemplary</td>
</tr>
<tr>
<td>ENT UTI</td>
<td>0.15%</td>
<td>0.18%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>ENT SSI</td>
<td>0.62%</td>
<td>0.86%</td>
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<td>Thoracic Cardiac</td>
<td>0.94%</td>
<td>1.08%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Thoracic SSI</td>
<td>1.03%</td>
<td>1.44%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Thoracic Sepsis</td>
<td>0.55%</td>
<td>0.65%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Thoracic C.diff Colitis</td>
<td>0.25%</td>
<td>0.25%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Urology VTE</td>
<td>0.59%</td>
<td>0.64%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Urology Renal Failure</td>
<td>0.56%</td>
<td>0.59%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Urology C.diff Colitis</td>
<td>0.23%</td>
<td>0.24%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Urology Return to OR</td>
<td>1.34%</td>
<td>1.51%</td>
<td>1</td>
<td>Exemplary</td>
</tr>
</tbody>
</table>
MINIMALLY INVASIVE ABDOMINAL WALL RECONSTRUCTION TECHNIQUES

The general surgery program at AAMC continually strives to enhance minimally invasive techniques across procedure types. Led by Dr. Igor Belyansky, the division of general surgery now offers a variety of minimally invasive options for patients who need abdominal wall reconstruction.

Although surgeons have been using component separation techniques since the early 1990s, in 2016 AAMC general surgeons first described the posterior component separation technique and transversus abdominis release performed entirely minimally invasively. Since the launch of this work, Dr. Belyansky has performed more than 300 of these procedures laparoscopically and robotically.

We are often able to discharge patients from the hospital after a brief 23-hour stay, and in some instances even the same day of surgery. This dramatically reduces hospital costs and allows for quicker return to functionality and normal life for patients. Overall, the trend in minimally invasive component separation aligns with AAMC’s mission of enhancing the health of the people we serve.

Overall, the trend in minimally invasive component separation aligns with AAMC’s mission of enhancing the health of the people we serve.

Posterior component separation and selective utilization of transversus abdominis release allows mesh to be placed completely extraperitoneally, thereby reducing the risk of bowel adhesions or erosion of mesh into these structures. This technique also allows for primary closure of the abdominal defects, which we believe can dramatically improve abdominal wall functionality while providing wide mesh overlap with fast integration. This increases the longevity of the repair and reduces hernia recurrence rates.
Dr. Jennifer Wormuth, a member of the AAMC Acute Care Surgery team, deployed to Afghanistan in November 2017 as a major in the United States Army Reserve. During a 90-day mobilization, the surgeons, CRNAs and medics assigned to the 1st Forward Surgical Team (FST) completed multiple missions throughout the country, providing fully operational damage control surgical capability to American and Afghani soldiers. The Golden Hour Offset Surgical Trauma team (GHOST) traveled with the Special Forces companies on their missions, setting up a two-bed OR so that definitive surgical care was available within an hour’s flight time from the battlefield. Gunshot wounds to the extremities and blast injuries from explosive devices made up the majority of combat-related injuries. Following initial surgical treatment by the FST, soldiers were evacuated to more advanced hospital care at the larger military bases in Bagram and Kandahar.
J. Robert Klune, MD, MBA, will be serving as the new Medical Director of Acute Care Surgery at Anne Arundel Medical Center. Dr. Klune joined the Anne Arundel Medical Group in October of 2017 as an acute care surgeon following his Trauma and Surgical Critical Care fellowship at the Shock Trauma Center in Baltimore.

The Acute Care Surgery group cares for an increasingly diverse and complex group of patients with acute surgical illness. It provides 24/7 coverage to the hospital and performs bedside, laparoscopic and open operations in addition to evaluating critically ill patients with surgical problems. In addition to being prepared to take care of a broad population of patients, they are also involved in a number of clinical improvement projects. These projects range from developing clinical pathways for several common surgical problems to improving communication with nursing staff with multidisciplinary rounds. The group is continuing to work to grow the acute care surgery service to meet the demands of an increasing volume of referral to AAMC and striving to provide high-quality, evidence-based state-of-the-art care. In addition to providing exceptional clinical care, the acute care surgery group has several initiatives in research, education and community outreach and is an integral part of surgical resident education at AAMC.
AAMC’s Weight Loss and Metabolic Surgery Program, led by Dr. Alex Gandsas, is fully accredited by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program with the American College of Surgeons (ACS).

ALEX GANDSAS, MD
Medical Director
PATIENT STORIES

Weight Loss Surgery Changed My Life

Recently, I celebrated the four-year anniversary of my weight loss surgery at AAMC. It’s hard to believe that it’s already been four years since that important day! The recovery of the surgery feels like yesterday, but in other ways it feels like a long time since I was obese.

I have dedicated this post to highlighting the improvements to my quality of life.

▶ It’s easier to get in and out of my car. Before the surgery, I would struggle to get in and out of my car, particularly getting out. Because I am much lighter and have stronger legs due to squats, getting in and out of vehicles is easy.

▶ It’s easier to tie my shoes. When there is a large belly in the way, bending over and tying shoes, putting socks on your feet, and anything involving interacting with your feet becomes nearly impossible.

▶ I am seldom out of breath, and sweat far less. It’s refreshing to easily do tasks and have the stamina to perform them.

▶ Bathing is now the easy task it should be. When my body was covered in fat, it was very hard to bend over and twist my body in the necessary way to adequately shower myself.

▶ I am far stronger than I used to be. Before surgery, I never in my life did a push-up, crunch, chin-up or pull-up. Now, I can do all of these with relative ease.

▶ I eat way healthier than before. Now, I make a serious decision about everything I eat. I try to avoid processed foods entirely. I also try to eat organic food whenever possible.

▶ I no longer take any medication. Medication had negative side effects I do not miss. They gave me brain fog, fatigue, and swollen feet and ankles. Furthermore, I’m not convinced I was less at risk of a heart attack or stroke than had I not taken them.

▶ My brain is functioning much better. I eat healthy throughout the day, and I feel great and as mentally sharp as I always have been.

▶ I fit in regularly sized clothes. I can now easily walk into a store and buy a pair of pants and a shirt.

▶ My doctor visits are significantly more pleasant.

MARK GOSS is president and principal software engineer for the Annapolis-based Wyetech. Mark had a sleeve gastrectomy with AAMC’s Weight Loss and Metabolic Surgery Program in February 2014. We’ve reprinted this post, with permission, from his Bariatric Betterment blog.
ACCOMPLISHMENTS OF THE REBECCA FORTNEY BREAST CENTER

Strategy
A multidisciplinary team from the Fortney Breast Center, including a large cohort of physician leaders, held a retreat this past year. With the help of AAMC Chief Strategy Officer Paula Widerlite, the team charted a course for the future of the center. This included outlining goals of improving patient-centered care with a focus on co-location of breast services in the future.

In addition, Drs. Singh, Holton, Liang, Jackson, Buras and Tafra together drafted a “declaration” that outlined our commitment to patients. A number of groups, including our Patient Advisors, approved the 10-item document, which includes such elements as maintaining a specialized team, understanding and prioritizing patients’ goals, working on prevention, training the next generation of leaders, and maintaining a robust research program. We continue to develop our culture of “less is more,” providing more opportunities for patients to choose a nonsurgical or less aggressive surgical approach.

Quality and Research
Our approach to quality is unique to our institution. As opposed to working on one quality metric at a time, we have chosen to invest in changing the infrastructure and processes of our workflow. We can now easily download the data needed for numerous quality measures from our electronic systems into an ongoing dashboard. This approach reduces the effort needed to obtain the quality data, while eliminating errors from double entry of data. To do this, Kip Waite, our quality data analyst, has developed new skills that enable him to cross the chasm between the clinical and the IT world. His work was accepted and presented at the National Consortium of Breast Centers. Quality metrics have included complication rates, time and efficiency metrics (e.g., time from appointment to surgery and chemotherapy), cancer patient retention rates and seasonal variation in patient volumes. This work is the GPS of the Fortney: With more than 70 projects completed, we are forming a clear idea of where we have been, where we are and where we want to go.

Under the leadership of Dr. Robert Buras, we have implemented a new body of research aimed at breaking down the sequential phases of care in the OR (turnover time, anesthesia time-asleep, cut-close surgeon time, etc.), and looking at the factors that affect those various phases.

Our robust research program has published numerous manuscripts this year on various aspects of breast disease management: use of the expensive test Oncotype and development of an algorithm in collaboration with MD Anderson Cancer Center in Texas to avoid that cost; use of axillary ultrasound and a model showing its use does not increase axillary node dissection as critics have suggested; a review article by the team on how to optimize margin-negative partial mastectomies; a summary of the debate by Dr. Lorraine Tafra at the American Society of Breast Surgeons on forgoing the use of sentinel node biopsy for women over the age of 70; and pain and fatigue associated with nipple-sparing vs. skin-sparing mastectomy.

Dr. Wen Liang brought a pivotal clinical trial, a COMET study that randomizes patients with low-grade ductal carcinoma in situ (DCIS). Experts have struggled to determine whether DCIS to observation in one arm, an early form of breast cancer, is actually a cancer. Dr. Liang’s trial received national recognition for being the highest national enroller. Her performance as the PI has been outstanding. In addition, she continues her work as the PI of a national trial that will start within the year. This trial involves the use of a new device that will reduce the need for patients to go to the OR for breast biopsies.

Under Dr. Rubie Jackson’s leadership as the Director of Research at the Fortney, we have added a number of other clinical trials to the research menu. One is a metastatic blood profiling trial;
another is a study re-biopsying tumors of patients who have shown a complete response on imaging, which could allow us to forgo surgery in complete responders in the future. We have continued with our Walter Reed Trial of data, tissue and blood banking of cancer patients, and at this writing we are six specimens away from obtaining 20,000 specimens over the 12 years of the study. We will have a party at 20,000! We will again host two summer interns on research projects.

**Programs**

We have expanded the Fortney’s presence to Easton under the leadership of Dr. Buras. We will maintain the same level of service by using telemedicine-type communication to provide access to the comprehensive team. Our OR Team continues to work hard on improving our communication skills, pathology documentation accuracy and overall quality metrics such as first-case on-time starts — the latter of which still seems to be a challenge.

Our patient educational program focused this past year on prophylactic mastectomy, which has been increasing at an alarming rate. This has been a national focus and we were acknowledged at our national meeting for our proactive approach to teaching patients. Our fellow, Dr. Lacey Stelle, developed this innovative approach. We will be focusing on other programs as well this coming year, including our high-risk program and genetic counseling, rehabilitation and survivorship, and outreach.

**Staffing**

Our newest addition to the Fortney is Ms. Linda Showalter. Ms. Showalter has a wealth of experience in both the private practice and hospital setting but, more importantly, she is a natural leader and manager of our staff. She is a “force multiplier” for every member of the team, and we are privileged to have her with us.

**Education**

We graduated Dr. Chrissy Harris, our prior fellow, who accepted a position at a growing breast center in Frederick, Maryland. Our current fellow, Dr. Stelle, has done an outstanding job this year. She has accepted a position with a formidable leader in the breast world, Dr. Lee Wilke of the University of Wisconsin. The Johns Hopkins surgical oncology fellows continue to obtain their breast training at the Fortney, and it is gratifying to know that, per their program director, we are their favorite rotation. Maybe we are being too nice!

We continue to host the Maryland Breast Cancer Consortium (MBCC) at the Four Seasons in Baltimore, which attracts physicians from around the state to learn about new paradigms of breast cancer care from national speakers. The MBCC began in 2014 and has provided a forum for developing productive relationships to foster research projects, collaborate on quality initiatives and improve inter-hospital communication.
INNOVATIONS IN BREAST RECONSTRUCTION

In 2018, AAMC plastic surgeons Devinder Singh, MD, FACS, and Tripp Holton, MD, were among the first surgeons in the mid-Atlantic region to provide breast reconstruction patients access to the revolutionary AeroForm tissue expander system. AeroForm tissue expanders allow patients to perform tissue expansion from the comfort of their own homes, by adding up to 30 milliliters of air to the expander daily through the use of a remote control. To date, 50 patients have used the system, which mitigates the risk of infection from saline expansion delivered manually via syringe and enhances patient satisfaction by reducing the number of follow-up visits required throughout the expansion process.

In addition to the AeroForm system, Drs. Singh and Holton now exclusively use the prepectoral breast reconstruction technique. Compared to the traditional subpectoral approach to reconstruction, the prepectoral placement of the implant above the muscle tissue results in less postoperative pain, quicker recovery and a more natural aesthetic result. The prepectoral reconstruction is supplemented with a biologic graft, which decreases morbidity associated with mastectomy skin flap tension and capsular contracture while securing implant placement on the chest wall. By combining AeroForm tissue expanders with prepectoral reconstruction supplemented by biological mesh, plastic surgeons at AAMC provide a truly patient-centered experience that delivers optimal clinical outcomes.

DEVINDER SINGH, MD
Chief

QUALITY BY THE NUMBERS: DIEP FLAP RECONSTRUCTION OUTCOMES

48 Deep Inferior Epigastric Artery Perforator Patients

68 Breasts Reconstructed

98% (DIEP) Flap Reconstruction Survival Rate
LEADERSHIP AND RESEARCH IN PLASTIC SURGERY

Under the leadership of Dr. Devinder Singh, the plastic surgery program at AAMC has become a model for delivering the highest-quality care to patients across a broad spectrum of disease states. In addition to providing direct patient care on a daily basis, Drs. Singh and Holton remain active in research and policy at the national level to continue advancing the profession. Highlights of their work include:

National Committee Service

- ASPS, BI-ALCL Subcommittee Member
- ASPS, Vice Chair, Regulatory Affairs Subcommittee, Legislative Advocacy Committee

Selected Publications


Selected Presentations

- Immediate Implant-Based Prepectoral Breast Reconstruction with AlloDerm Is Associated with Improved Clinical Outcomes: A Retrospective Comparison and Retro-spective Review of DIEP Flap Donor Sites: Cost Analysis were accepted for poster presentations at the Breast Cancer Coordinated Care (BC3) conference, which took place in Washington, DC, March 1–3, 2018.
RESEARCH SPOTLIGHT

LUNG CANCER SCREENING IN THE COMMUNITY SETTING

Background
Because it is typically diagnosed in later stages, lung cancer has high incidence and a high mortality burden. The National Lung Screening Trial (NLST) demonstrated a lung cancer–specific mortality benefit in high-risk current and former smokers with yearly low-dose chest CT. Lung cancer screening is thus recommended, but it is unclear if the results of the NLST can be replicated in community settings.

Methods
We performed a retrospective review of the lung screening program over its first five years, 2012–2016. We analyzed patient demographics, initial screening results, follow-up and management results in relation to the NLST results. We defined annual adherence as returning for imaging within one year plus 90 days.

RESULTS
Over the five-year period, 1,241 persons underwent initial screening. Of our findings, 78.6% were benign and we recommended only annual repeat low-dose chest CT. We identified 29 cancers in 26 participants (2%), of which 72% were stage I. Annual adherence rate to repeat imaging after low-risk baseline scan was 37%, and any follow-up rate was 51% despite programmatic efforts to follow screening recommendations. When positive findings required more intensive evaluation, most commonly by repeat chest CT scan, adherence was 88%. 1.1% of all participants had invasive biopsies for benign results. Complications of biopsy were minimal.

Conclusions
Our review demonstrates that a community-based program can approximate the results of the National Lung Screening Trial in detecting early lung cancers. Further study of the adherence phenomenon is essential.

COMMUNITY-BASED LUNG SCREENING programs can approximate the results of the NLST.

TEAM GROWS TO MEET COMMUNITY NEEDS

Vascular surgery at Anne Arundel Medical Center continues to grow and evolve to meet the needs of the hospital and the Annapolis community.

With expertise in all vascular pathology, we treat a wide spectrum of patients with increasingly complex conditions. Our group works closely with referring physicians and cardiologists to manage and treat carotid occlusive disease, aortic aneurysms, peripheral vascular disease, venous insufficiency and dialysis access, among other problems.

Over the past year, our vascular team has focused on efficiency and cost-containment efforts by carefully reviewing the endovascular devices we use while growing the volume of minimally invasive procedures. We have become engaged teachers of the AAMC surgical residents. Also, in recognition of our large clinical volume, we were invited to take part in two national clinical research trials using advanced endovascular technology. As a result of our participation in these trials, we have the opportunity to use and evaluate cutting-edge devices.

The vascular team has continued to grow over this past year. Our chief, Mark Peeler, MD, a trusted, experienced surgeon at AAMC, has been a member for many years. Geetha Jeyabalan, MD, joined the group in 2016 after having been an Assistant Professor of Vascular Surgery at the University of Pittsburgh since 2011. Joseph Wuamett, MD, completed his fellowship at Eastern Virginia School of Medicine and has been practicing at AAMC since July of 2016 as well. This year, we added a fourth surgeon to our group. Lucy Kupersmith, MD, a recent graduate of the integrated vascular residency at Louisiana State University, has started seeing patients. Together, the four surgeons — along with their team of physician assistants and vascular technologists and nurses — offer the best care possible to our community. Over the next few years our group will continue to grow and evolve along with the ever-advancing technology of vascular care.

Goals for the upcoming year include creating clinical pathways to streamline postoperative care of vascular surgery patients and education of nursing staff in the care of complex vascular patients. Additionally, we hope for a hybrid room in the near future that will allow us to continue to expand the treatment options we are able to perform and allow more patients to be treated at AAMC.
PATIENT SPOTLIGHT

LAPAROSCOPIC SURGERY REPAIRS HERNIA AND REMOVES PROSTATE CANCER SIMULTANEOUSLY

James Savoy, Jr., underwent a dual procedure to repair his hernia and remove his cancerous prostate gland at the same time.

Having to live with an enormous hernia in your abdomen can be difficult all on its own. Combine that with a prostate cancer diagnosis, and you’ve got a serious health challenge.

James faced these very problems head-on. In fact, his diagnosis also led him down a path to improved health.

The retired Columbia, Maryland resident wanted to have his stage 1 prostate tumor surgically removed, as urologist and AAMC Associate Chair of Surgery Robert Hanley, MD, recommended. But Dr. Hanley said that in order to perform the surgery, he would also need to take care of James’ watermelon-size hernia.

At that point, Dr. Hanley called AAMC hernia specialist Igor Belyansky, MD, to discuss the idea of performing these two surgeries at the same time. “The dual robotic procedure would remove James’ cancerous prostate gland and repair his giant hernia at the same time,” said Dr. Hanley. Neither surgeon believed that a robotic dual prostatectomy and abdominal wall reconstruction surgery had been previously performed in one sitting.

Given the complexity of his abdominal wall hernia, the surgeons asked James to lose 50 pounds — about 20% of his body weight — to make the procedure possible. James was up for the challenge.

**Big Benefits from Small Surgery**

James was motivated for several reasons to go to great lengths to have laparoscopic surgery. This minimally invasive technique uses small instruments, including a scope with a camera, which are inserted through small incisions. Robot-assisted laparoscopic surgery — where the surgeon controls instruments at the end of robotic arms using a monitor and console — adds another level of precision.

**Leap of Faith**

Over the next several months, James set out to lose weight using a physician-approved diet. With his surgeons’ encouragement, he thrived. James lost more than 50 pounds.

“I just had a lot of faith in those two doctors,” says the grandfather of six. “They gave me the confidence I needed to make my decision. Otherwise I would have had to go under the knife twice in one year. When they explained the robotics and the fact that my recovery time would be tremendously less, it got me excited. I decided it would be a life-changing thing.”

Drs. Hanley and Belyansky were thrilled with their patient’s commitment. By the time the dual surgery was scheduled, they had mapped out the six-hour process. In addition to removing his prostate, they would reconstruct James’ abdominal wall. They would bring the muscles back together to their native position and use surgical mesh, all through several tiny incisions.

**“A Mind-Blowing Outcome”**

After a complication-free 23-hour hospital stay — a week shorter than similar surgeries involving large incisions — James went home. Within weeks, he was back to his favorite activities, including gardening, grilling and cheering on the Redskins.
Since the surgery, James has been doing remarkably well. He has maintained his weight loss with the help of the vegetables he grows in a community garden. “I grow tomatoes, collard greens, kale, potatoes and more. I just love to play in the dirt,” he says. James has also given away his larger-size clothing. He appreciates his trimmer physique and good health.

“We talked with James about his goals and then developed a plan,” Dr. Belyansky says. “In order to be successful, each of us had to do his part. It’s a mind-blowing outcome for everyone.”
RESEARCH SPOTLIGHT

MAXIMIZING THE COST-EFFECTIVENESS OF ROBOTIC-ASSISTED SACROCOLPOPEXY THROUGH OPERATING ROOM COST-CONTAINMENT INITIATIVES

Pelvic organ prolapse has a high prevalence in women, with the most common treatment being robotic-assisted sacrocolpopexy. We commonly evaluate surgical success using post-operative measurements. In today’s cost-constrained health care environment, it is essential to optimize the cost-effectiveness of surgical procedures to ensure efficient resource allocation. We know very little about how cost containment affects surgical outcomes.

The goal of our study was to measure how cost-saving initiatives affected the operating room, and to determine if these changes affected post-operative outcomes of robotic-assisted sacrocolpopexy patient. We reviewed a retrospective study of 295 robotic-assisted sacrocolpopexy patients between June 2013 and May 2016 and assessed preoperative characteristics such as ASA, HCC and financial and clinical outcomes, measured via Pelvic Organ Prolapse Quantification. We performed all statistical analysis using IBM SPSS version 23 (Armonk, NY).

Across the patient cohort, hospitalization cost and OR supply and implant decreased over four years. Hospitalization cost decreased from $13,192.91 in 2013 to $9,815.42 in 2016 (p<0.001), while average OR supply and implant cost decreased from $4,755.18 to $3,183.02 (p<0.001). We found no significant difference in preoperative surgical risk factors, while average procedure and inpatient length of stay decreased. All post-operative outcomes measuring operative success remained consistent throughout the study. Implementing cost savings over a four-year period decreased OR and hospitalization costs without affecting the quality of surgical outcomes of patients undergoing robotic-assisted sacrocolpopexy. This presents an opportunity to enhance cost-effectiveness of the procedure.

Presented at the 2017 IUGA 42nd Annual Meeting, Vancouver, Canada, June 20–24, 2017.
OTOLARYNGOLOGY SURGEONS DESIGN RESOURCES FOR PEDIATRIC SURGERY PATIENTS

At AAMC, we’re committed to providing family-centered care by coordinating providers and integrating care across our broad continuum of services. In support of this goal, we have designed multiple resources for pediatric patients undergoing surgery. A web-based patient education guide and virtual tour featuring “Bella,” a fictitious AAMC surgical patient, prepare pediatric patients and their families for the surgical experience. In addition, we offer weekend tours, enabling families to become familiar and comfortable with our surgical suite before the day of surgery.

In addition to these standard offerings, we have developed a variety of programs to enhance the experience of pediatric special needs patients. Spearheaded by the nurses in PACU, we’ve designed a tool for children with autism spectrum disorder. We call it “A-PLUS Kids,” using an acronym to remind staff of our efforts to provide well-informed, individualized care to autistic patients:

- **A**: Awareness and education about autism spectrum disorder
- **P**: Prepare the patient and family for surgery
- **L**: Listen to patient and family
- **U**: Understand the patient’s unique needs
- **S**: Sensitivity regarding sensory issues

The tool includes a series of questions geared towards gaining knowledge on the child’s specific preferences and triggers. Our goal is to make the family’s experience as comfortable as possible.

MATTHEW HILBURN, MD
Chief
REDUCING OPIOID UTILIZATION IN ORTHOPEDIC SURGERY

2017 marked the introduction of the Orthopedic Patient-Centered Post-Procedure Opioid Prescribing Initiative.

We developed this initiative in response to the overwhelming opioid epidemic facing our community and nation. The goal from the outset was to determine and prescribe the actual amount of narcotic pain medication needed for a given procedure.

Recent published literature has demonstrated that as much as 66% of the narcotic pills prescribed for patients undergoing orthopedic surgical procedures may go unused. This creates a potential surplus of narcotic pills that may be diverted to support the opioid crisis.

First, we reached out to treating surgeons to create a consensus on how much narcotic is actually needed for a given procedure. We have been asking the patients undergoing those procedures to fill out a patient diary documenting actual opioids consumed in the immediate post-operative period.

Finally, we’ve been documenting and tracking any time a second prescription is required during the postoperative period within the medical record. This feedback loop of patient-reported consumption, as well as the need to write a second prescription, has enabled providers to ensure the amount of narcotic they prescribe is the actual amount needed during the postoperative period.

The results to date have been remarkable. Through the first six months of the program, patients experienced a 47.9% decrease in the amount of opioids prescribed, with only 8.5% of patients requiring a refill of their prescription.
ORTHOPEDIC RESEARCH PRODUCTIVITY

Orthopedic research is continuing to expand. Our team now consists of one full-time research fellow, two full-time clinical research coordinators and one full-time research assistant. We have six active clinical trials: One is a phase IIb medication trial and five are orthopedic device trials. Most of the current orthopedic research output is from The Joint Center, but we are actively expanding into other areas of orthopedics.

In the past year, we have had three manuscripts published in peer reviewed medical journals. “Reducing Length of Stay Does Not Increase Emergency Room Visits or Readmissions in Patients Undergoing Primary Hip and Knee Arthroplasties” and “Evaluation of the Learning Curve When Transitioning from Posterolateral to Direct Anterior Hip Arthroplasty: A Consecutive Series of 1000 Cases” were published in the Journal of Arthroplasty. “Opioid Prescriptions after Total Joint Arthroplasty” was published in the Journal of Surgical Orthopedic Advances.

We also presented five papers at three regional or national conferences: American College of Surgery Quality and Safety Conference, American Academy of Orthopedic Surgeons and Maryland Orthopedic Association Annual Meeting.
JOINT REPLACEMENT

2,299
JOINT PROCEDURES PERFORMED IN 2017, THE MOST IN MARYLAND

20%
SHORTER AVERAGE LENGTH OF STAY than the Maryland hospital average in FY 2017

20%
MORE PROCEDURES PERFORMED than any other program in Maryland over the last 5 years

6,000+
patient-reported outcomes captured

7 YEARS
in a row as the busiest joint replacement program in Maryland

69%
1-DAY DISCHARGE PATIENTS discharged within 1 day of surgery

10TH-
BUSIEST IN THE COUNTRY
10th-busiest joint replacement program in the country for Medicare beneficiaries

20%
MORE PROCEDURES PERFORMED than any other program in Maryland over the last 5 years

TOP 10 U.S. HOSPITALS WITH MEDICARE “DRG-PAYMENT” HIP AND KNEE REPLACEMENT PROCEDURES 2016

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>LOCATION</th>
<th>2016 MEDICARE CASES</th>
<th>YRS IN 10-YR TOP 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital for Special Surgery (330270)</td>
<td>New York, NY</td>
<td>4,732</td>
<td>10</td>
</tr>
<tr>
<td>New England Baptist Hospital (220088)</td>
<td>Boston, MA</td>
<td>2,479</td>
<td>10</td>
</tr>
<tr>
<td>Mayo Clinic Hospital1 (240010)</td>
<td>Rochester, MN</td>
<td>1,878</td>
<td>10</td>
</tr>
<tr>
<td>William Beaumont Hospital (230130)</td>
<td>Royal Oak, MI</td>
<td>1,618</td>
<td>10</td>
</tr>
<tr>
<td>Swedish Medical Center (500027)</td>
<td>Seattle, WA</td>
<td>1,513</td>
<td>4</td>
</tr>
<tr>
<td>Hoag Orthopedic Institute (050769)</td>
<td>Irvine, CA</td>
<td>1,469</td>
<td>1</td>
</tr>
<tr>
<td>Morristown Medical Center (310015)</td>
<td>Morristown, NJ</td>
<td>1,396</td>
<td>1</td>
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<tr>
<td>McBride Orthopedic Hospital (370222)</td>
<td>Oklahoma City, OK</td>
<td>1,350</td>
<td>1</td>
</tr>
<tr>
<td>St. Francis Hospital &amp; Medical Center (070002)</td>
<td>Hartford, CT</td>
<td>1,332</td>
<td>1</td>
</tr>
<tr>
<td>Anne Arundel Medical Center (210023)</td>
<td>Annapolis, MD</td>
<td>1,299</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Optum Payer Solutions Consulting. Includes cases assigned to DRGs 469–470, 461–462, 466–469.

1Mayo Clinic includes cases from St. Mary’s and Rochester Methodist
THE CENTER FOR SPINE SURGERY

Patient-Centered Pathway Team

Our multidisciplinary team approach drives our ability to deliver the highest-quality care tailored to each patient’s needs. A variety of programs have been implemented through our Spine Pathway.

CHAD PATTON, MD  
Orthopedic Surgery  
Medical Director  
The Center for Spine Surgery

TIM BURKE, MD  
Chief of Neurosurgery
Patient Outcomes

We capture patient-reported outcomes measures (PROMS) for patients treated by spine surgeons at AAMC Orthopedics. These tools allow providers to track the impact of surgical intervention over time from the patient’s perspective. We use PROMS both in research and clinical practice to evaluate each patient’s quality of life. On average, patients undergoing lumbar spine surgery lowered their disability score by more than 60%. Lower scores mean a patient is less disabled.

Lumbar Spine Surgery Patient-Reported Outcomes: Oswestry Disability Index

Spine surgery patient satisfaction scores have risen by 23% since 2015 and significantly exceed the 73% average for spine centers nationally.

Note: A lower score on the Oswestry Disability Index denotes a lower level of disability, and a better functional outcome for patients.
LEADING SYSTEMWIDE QUALITY IMPROVEMENT: DEVELOPMENT OF A CPAP PROTOCOL

A multidisciplinary effort between Anesthesia, Surgery, Critical Care, RT, IT and the AAMC Research Institute has created a pathway to better care for our perioperative obstructive sleep apnea (OSA) population. The team developed the initiative in response to a low perioperative CPAP compliance rate in this population, which was correlated to a twofold increased risk of unexpected escalation of care compared to CPAP-compliant inpatients. The multidisciplinary team, led by anesthesiologist Dr. Maxim Orlov, developed an automated CPAP order set, which links the diagnosis of OSA in the patient’s chart to surgical admission order sets. A respiratory therapist executes the CPAP order to ensure patients are CPAP-compliant, thus lowering their risk of an adverse respiratory event. The team is conducting ongoing data collection and outcomes tracking to drive interval adjustments and ensure this vulnerable population continues to receive optimal perioperative care.

Multidisciplinary Simulation: Surgical Airway Management

The James and Sylvia Earl Simulation to Advance Innovation and Learning (SAIL) Center has developed and launched an emergency surgical airway course. The center developed this multidisciplinary course, offered monthly, to increase institutional competency in providing emergency surgical airway access. The anesthesiology service was the first to complete the training. Anesthesiologists undergo extensive training in airway management in residency and through continuing medical education.

Anesthesiologists frequently deal with airway management in each of our patient encounters and need to have competency in a range of noninvasive as well as invasive approaches. In rare instances, a patient will need a secure airway that we cannot achieve without an invasive approach. These events are low-frequency, emergent and very high-risk, and thus perfect for simulation-based training. This hands-on course gives us the skills we need to provide this potentially lifesaving intervention.

The course is open to all providers at the hospital and has since been expanded to providers in the emergency department, intensive care unit and acute care surgery services.
On July 1, 2017, we welcomed our inaugural class of Surgery residents to AAMC. These young physicians have successfully integrated into the full realm of surgical services, and into our institutional culture of quality and patient safety.
AAMC’S FIRST RESIDENCY PROGRAM IN SURGERY

In 2013, AAMC’s Board of Trustees approved the plan to develop AAMC as a teaching hospital. With their approval, we submitted an application to the Accreditation Council for Graduate Medical Education (ACGME). In March 2015, ACGME approved AAMC as a Sponsoring Institution, allowing us to apply for residency programs. We did just that, and the Surgery Program at AAMC was approved in record time. Accreditation was effective July 1, 2016, for three residents per year in the five-year program. The vision of AAMC’s Board of Trustees was beginning to take shape.

With much work behind the scenes from Program Director Alex Gandsas, MD, our physicians, nurses, GME department and countless others, we began to recruit our first Surgery residents. We received more than 700 applications for our first-year positions. After selection of our candidates and an intensive interview process, the program matched three of our top 17 candidates. We also recruited our second-year residents, and offered these positions to outstanding candidates who had previously completed their preliminary training. These six bright and unique people are shaping the culture of our new teaching program.

PGY-1

- ABDEL-MONEIM MOHAMED ALI, MD
- WHITNEY DAVIDSON, MD
- UDAI SIBIA, MD

PGY-2

- BRANDON ANDERSON, MD
- BERNARDO DIAZ, MD
- SHYAM JAYARAMAN, MD

ALEX GANDSAS, MD
Program Director

LORRAINE TAFRA, MD
Associate Chair of Surgery
The James and Sylvia Earl Simulation to Advance Innovation and Learning (SAIL) Center is a unique facility dedicated to the advancement and practice of medicine through research, training and innovation designed to improve surgical and medical procedures and outcomes for patients.

The Earl SAIL Center provides a premier educational environment for advanced training of health care practitioners throughout the region and the U.S. The Center is focused on how users learn and adapt to new medical technologies that enhance the practice of medicine and improve patient safety and care. Through sophisticated simulation and training, participants become more familiar with emerging medical technologies, learn to use these technologies faster in the simulation lab, and become more self-assured in their skills.

**Fellowship Training**

Fellowship training at Anne Arundel Medical Center (AAMC) provides new surgeons the opportunity to take their training to the next level alongside a team of highly experienced surgeons, researchers and healthcare leaders. This training lays the foundation for trainees to become experts in their field of choice as well as understand the questions that need to be asked to move the specialty forward in the decades to come.

**The Department of Surgery offers four fellowship programs across the following disciplines:**

- Advanced GI MIS Fellowship program — under the direction of Adrian Park, MD
- Advanced GI MIS Fellowship program — under the direction of Alex Gandias, MD
- Breast Oncology Fellowship program — under the direction of Lorraine Tafra MD
- Mastery In General Surgery Fellowship program — the first fellowship program of its kind in Maryland

A critical component of this training is working to develop leadership skills to prepare the trainee for all types of leadership positions in the future. Across each of the programs we foster a culture of transparency that integrates residents and fellows into institutional patient safety and quality improvement initiatives. Fellows are introduced to a model of team-based multidisciplinary care and are taught to leverage cultural sensitivity to view each disease in the context of population health. In addition, fellows take on a rigorous research and simulation curriculum which typically results in numerous Peer-Reviewed publications. In 2017, clinical fellows in partnership with research fellows undertook an ambitious project evaluating the impact of a new residency program on hospital culture, with results forthcoming in publication.
THE BREAST CENTER

Abstracts/Posters/Podium Presentations


Tran HT, Sanders T, Mylander C, Rosman M, Buras R, Liang W, Tafra L, Jackson RS. Do size and nodal stage affect time to recurrence? Accepted for poster presentation at the American Society of Breast Surgeons Annual Meeting, April 2017.


Harris CK, Lee K, Mylander C, Pack D, Rosman M, Andrade R, Liang W, Tafra L, Jackson RS. Positive ultrasound-guided lymph node needle biopsy in breast cancer may not mandate axillary lymph node dissection. Accepted for poster presentation at the American Society of Breast Surgeons Annual Meeting, April 2017; selected as one the top posters for presentation.


Chapter Publications

THE CENTER FOR JOINT REPLACEMENT

Peer-Reviewed Publications


**THE CENTER FOR SPINE SURGERY**

**Abstracts/Posters/Podium Presentations**


**Peer Reviewed Publications**


**GENERAL SURGERY**

**Selected Oral Presentations**


I Belyansky, Weltz AS. Don't Have a Robot? Do it Lap! Abstract and oral presentation at the European Hernia Society annual meeting. May 24-27, 2017; Vienna, Austria.


**Accepted Video Presentations**


**Selected Poster Presentations**


Weltz AS, Taylor HL, Zahiri HR, Sibia US, Turner TR, Park A. Patients Are Well Served By Collis Gastroplasty When Indicated. Abstract and poster presentation at the Anne Arundel Medical Center, Quality Improvement Showcase/Hospital Week. May 15, 2017; Annapolis, Maryland.

**Peer-Reviewed Publications**


Adrian E. Park, MD, FACS. “Physician Heal Thyself” isn’t working. *Annals of Surgery.* 2017


Textbook Chapters


Sanford Z, Jayaraman S, Zahiri HR, Belyansky I. Endoscopic and laparoscopic techniques of minimally invasive components separation for abdominal wall reconstruction. Laparoscopic and Robotic Incisional Hernia Repair: Current Considerations, Karl LeBlanc, ed


PLASTIC SURGERY

Peer-Reviewed Journal Articles


National Lectures

University of Nebraska Surgery Grand Rounds — NPWT innovations, 2016
Mayo Clinic Plastic Surgery Conference, ci-NPT, April 7, 2016
Wayne State University Karmonos Cancer Center Grand rounds, April 7, 2016
Yale University plastic surgery grand rounds, August 10, 2016
Wild on Wounds, Innovation in NPWT, Las Vegas, September 2016
Managing Conflict of Interest. Abdominal Wall Reconstruction Conf, DC June 2016
Diastasis repair. Abdominal Wall Reconstruction Conference, DC, June 2016
Stump the Experts, Abdominal Wall Reconstruction Conference, DC, June 2017
Panniculectomy, Abdominal Wall Reconstruction Conference, DC, June 2017
Coding, Abdominal Wall Reconstruction Conference, DC, June 2017
NPWT, Abdominal Wall Reconstruction Conference, DC, June 2017
Long Island Jewish Northwell, Ob-Gyn Grand rounds, Jan 2018
UVA Medical Center, Transplant surgery grand rounds, ci-NPT, Feb 2018
Connecticut Plastic Surgery Society, Prepectoral Breast Reconstruction, May 12 2018
Panniculectomy, Abdominal Wall Reconstruction Conference, DC, June 2018
Flaps, Abdominal Wall Reconstruction Conference, DC, June 2018
Incisional Negative Pressure, Abdominal Wall Reconstruction Conference, DC, June 2018
OPHTHALMOLOGY

Peer-Reviewed Publications


THORACIC SURGERY

Peer-Reviewed Publications
