

ADVANCING ORTHOPAEDICS, INSPIRING EXCELLENCE



UNIVERSITY *of* MARYLAND
SCHOOL OF MEDICINE

Department of
Orthopaedics
2017 Annual Report

BUILDING MOMENTUM, SUSTAINING LEADERSHIP

By any measure, 2016-17 was a remarkable academic year for University of Maryland Orthopaedics in terms of decisive growth in all of our efforts—as clinicians, researchers, and educators. We did not reach this high level of excellence overnight, but through the concerted and collective effort over the past three years along all major fronts—clinical revenue, outpatient visits, research funding, philanthropy, and published works. Underscoring all of these achievements is our continuing commitment to safety, efficacy, and reliability.



Dr. Andrew Pollak at a Q&A forum during the August 2017 dedication of the new Terrapin Performance Center, the completed first phase in construction of the new Cole Field House at the University of Maryland, College Park. The event also celebrated the groundbreaking of the second phase of the project, which includes the new Center for Sports Medicine, Health and Human Performance, and a full-service ambulatory practice center staffed by the UM School of Medicine's Departments of Orthopaedics and Family Medicine.

Of course, we could not have realized these accomplishments without the energy and determination of our department's superb faculty and staff. Singly, and in collaboration with their colleagues, they have demonstrated time and again their talent and experience in advancing the science, practice, and education of orthopaedics, both here at the University and beyond. As proof, let me share with you just a few of our many highlights of the past year:

In preparation for the 2019 opening of the new **Center for Sports Medicine, Health and Human Performance** on the College Park campus of the University of Maryland, we are launching a new academic **Program in Sports Medicine**. This Program's world-class clinical focus will integrate several disciplines, similar to the model of the School of Medicine's Trauma and Cancer Programs.

With the Center's debut, our advanced Sports Medicine team will offer a comprehensive clinical facility for UM athletes as well as the public from throughout the DC Metropolitan area and beyond. In addition, our researchers will focus on studies involving Sports biomechanics, traumatic brain injuries, and more.



“In today’s rapidly changing medical profession, sustaining the highest quality of care requires innovative thinking, unwavering dedication, and an absolute commitment to the wellbeing of our patients over time.” —Andrew Pollak, MD

In 2016, the new, state-of-the-art **University of Maryland Orthopaedics at Camden Yards** expanded its onsite clinical services to patients, thanks to the collaborative presence of onsite physical therapists from the UM Department of Physical Therapy, as well as the addition of the Center for Hand & Upper Extremity Care. In the meantime, the **Orthopaedics faculty practice at the University of Maryland Medical Center Midtown Campus** has expanded dramatically to include an increasing number of surgery options, a podiatry service, and plans for a new geriatric fracture service.

We are especially proud of the momentum we have achieved this past year in strengthening the scope of our **research activities**. Masahiro Iwamoto, DDS, PhD, and Motomi Enomoto-Iwamoto, DDS, PhD joined our department in early 2017 from Children’s Hospital of Philadelphia. Both acclaimed scientists, the Iwamotos are top Investigators in cartilage, bone and tendon biology. They add to the rising number of important research efforts already in play across our department, including Dr. Robert O’Toole’s PCORI-

funded blood clot prevention study and Dr. Mohit Gilotra’s investigation into the challenges of rotator cuff tear (RCT) repair.

In **education**, we have further strengthened our reputation as one of the leading orthopaedic training programs in the nation, from our undergraduate instruction to our highly competitive residency, and fellowship programs. We attract an elite set of learners, and we continue to raise the bar on their training. This past year we were privileged to be approved by the Orthopaedics RRC and the ACGME to increase our complement of residents from 5 to 6 per year.

In today’s rapidly changing medical profession, sustaining the highest quality of care requires innovative thinking, unwavering dedication, and an absolute commitment to the wellbeing of our patients over time. As you will read on the following pages, **UM Orthopaedics is exceeding this challenge in every regard**—through our dependable and proven clinical care, our superior musculoskeletal research with its growing base of funding, and our outstanding educational opportunities for the next generation of orthopaedic physicians.

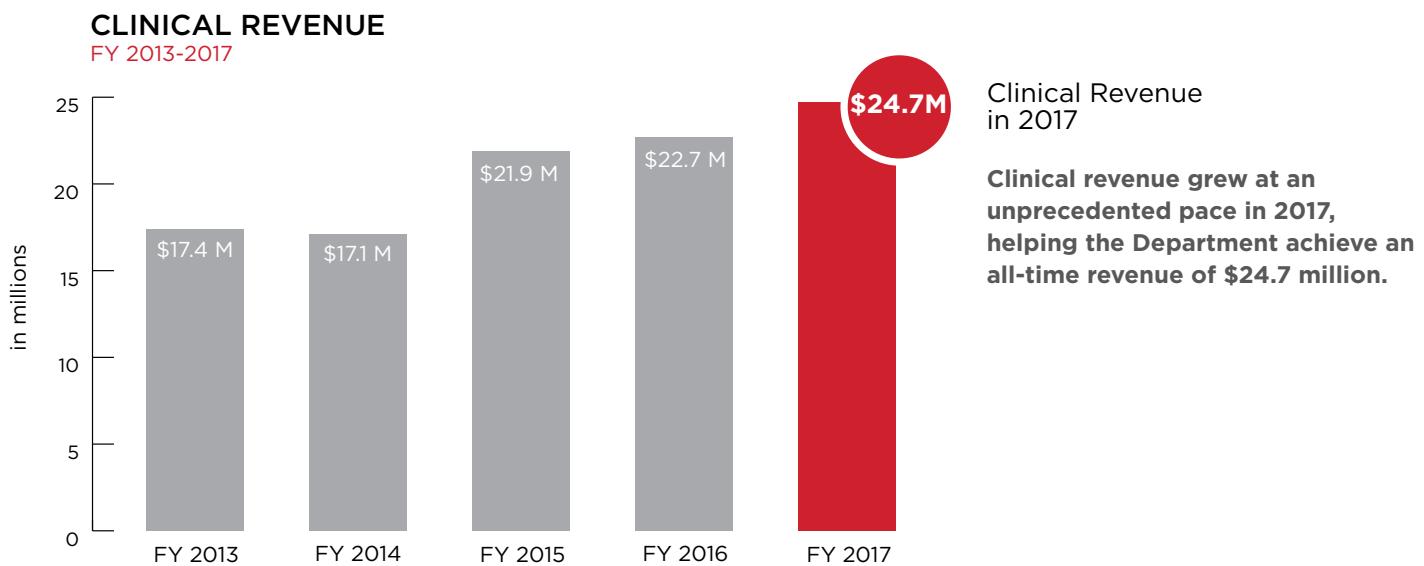
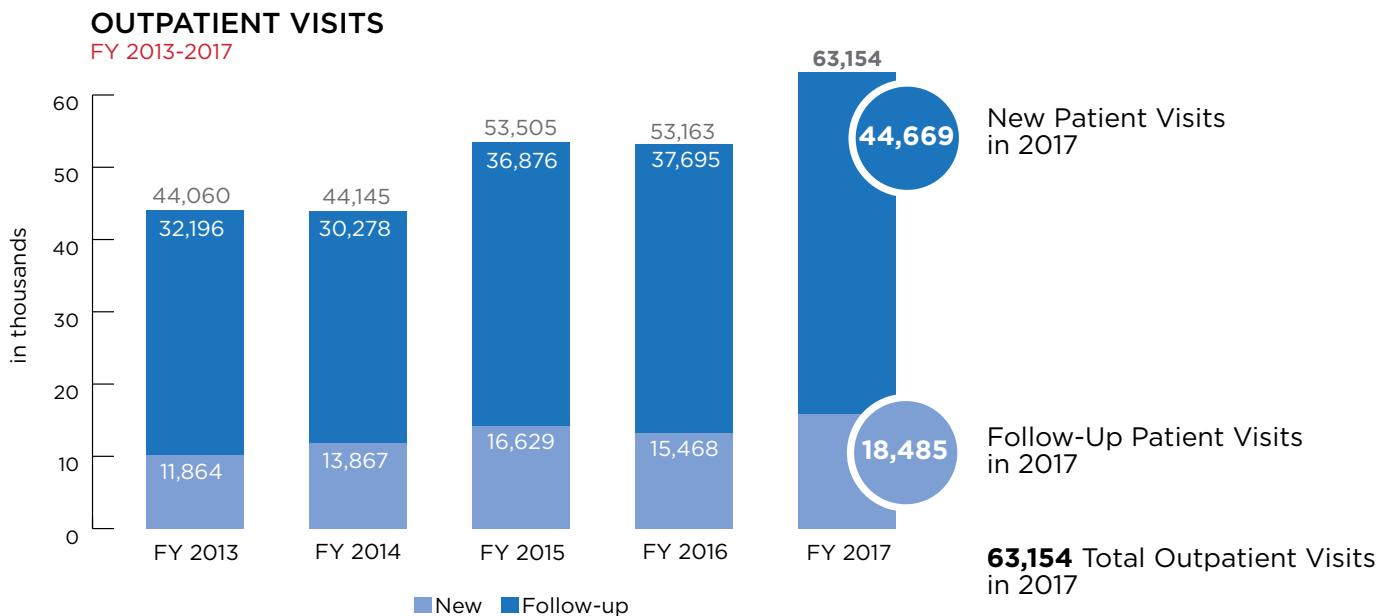
Thank you for your interest and support, and please enjoy this Annual Report.

Sincerely,

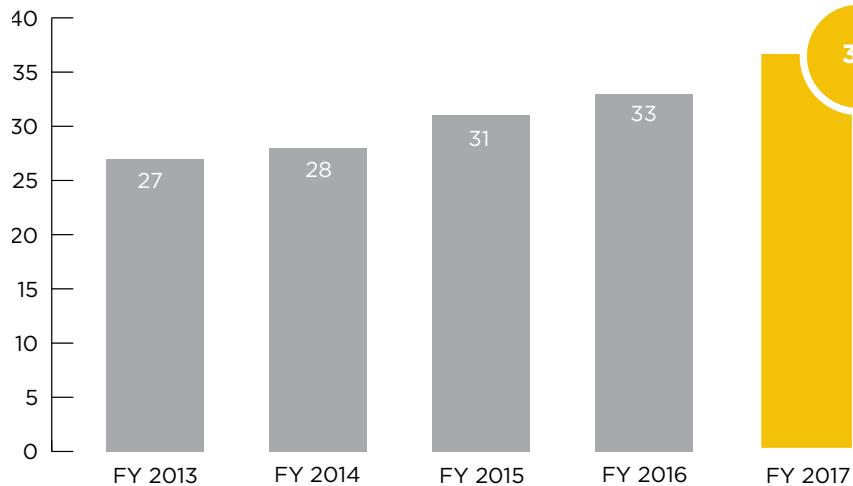
A handwritten signature in black ink, appearing to read "Andrew N. Pollak".

Andrew N. Pollak, M.D.
The James Lawrence Kernan Professor and Chair, Department of Orthopaedics, University of Maryland School of Medicine
Chief of Orthopaedics, University of Maryland Medical System

2017 BY THE NUMBERS



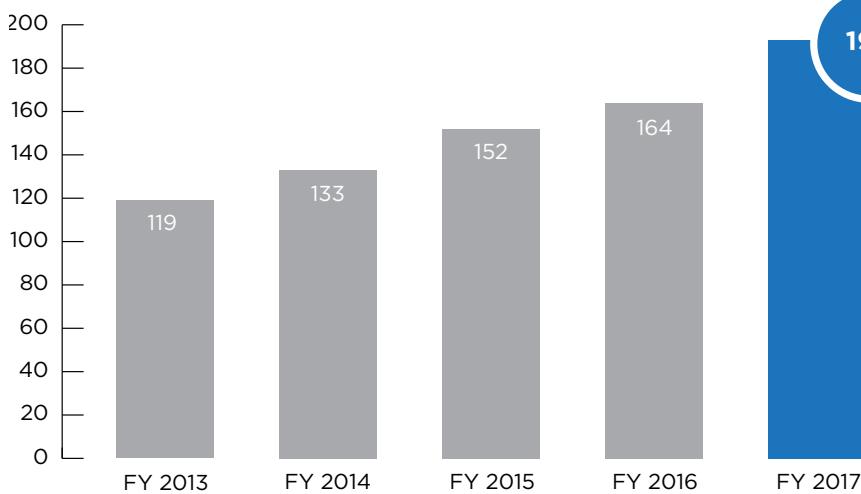
FACULTY FY 2013-2017



Total Faculty in 2017

Our department continues to grow at a steady pace as we recruit internationally recognized surgeons and physician-scientists.

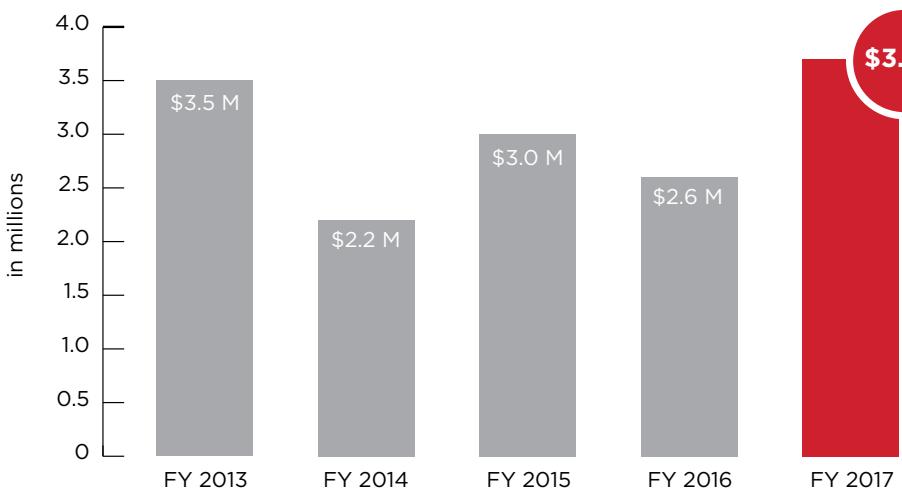
PUBLISHED WORKS FY 2013-2017



Published Works in 2017

Our faculty are among the most published of any Orthopaedics department in the nation.

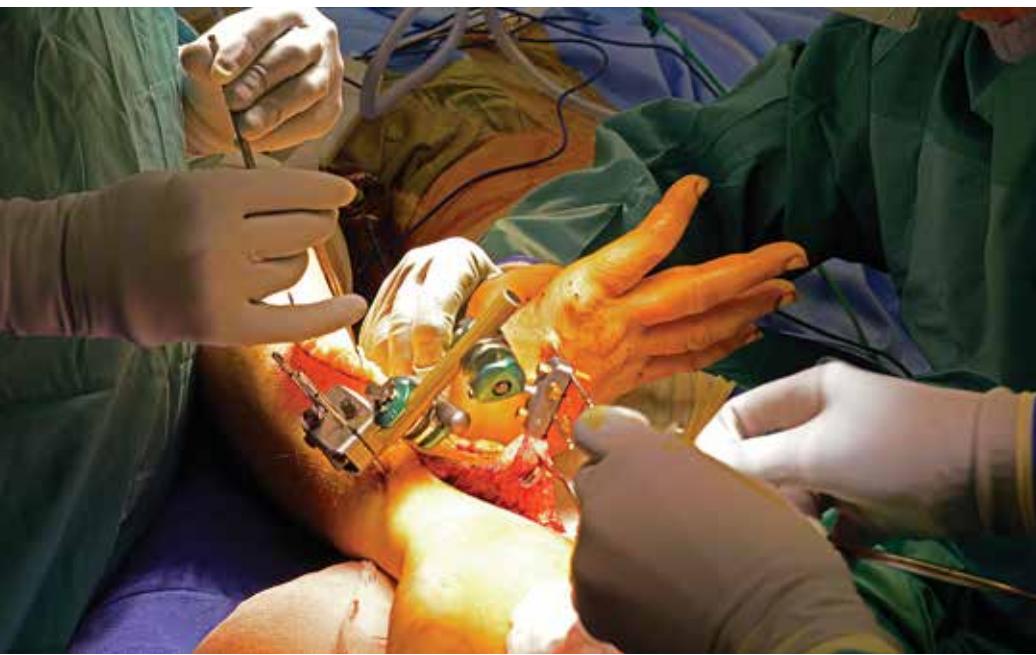
RESEARCH FUNDING FY 2013-2017



Research Funding in 2017

Research funding dipped in 2016 with the expiration of some grants, but is expected to reach new highs as a result of new faculty and newly awarded grants.

A HIGHER STANDARD OF CARE, HANDS DOWN



For **Ray Pensy, MD, Assistant Professor of Orthopaedics**, as well as his colleagues at the University of Maryland Center for Hand & Upper Extremity Care, a final puzzle piece was missing – a location for their clinical practice that supported their own high standards—and their growing patient volume.

In 2016, that piece fell perfectly into place when the Center found its permanent practice site at the new, state-of-the-art University of Maryland Orthopaedics at Camden Yards. Located in the iconic, century-old Camden Yards Warehouse adjacent to the Baltimore Orioles Baseball Stadium, the modern 10,000 square-foot location offers an optimal combination of onsite services that further enhances the Hand Center's care to patients. "By having a convenient, central

practice site complete with diagnostic and imaging services, we now can treat patients of all ages, from pediatrics to adults and seniors, as well as a full spectrum of hand conditions," says Dr. Pensy. "What's more, all of our patients are seen by board-certified, fellowship-trained hand specialists."

Dr. Pensy also points to the presence of onsite occupational therapists at Camden as an added plus for the Center's practice and its patients. "Now, any of our attending physicians can see a

patient with a new injury or hand condition and then literally walk that patient down the hallway to meet the occupational therapist and have a team huddle to discuss the treatment plan," he notes. "That's a huge advantage." The Center's Occupational Therapy (OT) service applies the art and science of specialized rehabilitation of the upper limb, from shoulder to hand, to a client-centered approach that promotes a return to normal activities as quickly as possible.

GROWING REPUTATION

Since its launch in 2016, the Hand Center has gained a widening reputation for its comprehensive approach to care for the evaluation and treatment of hand and upper extremity disorders, supported by a multidisciplinary team that is focused on successfully resolving a wide range of patient problems, from routine cases like arthritis and trigger finger to complex trauma. The Center's physicians also address more complex conditions, like Dupuytren's Contracture as well as Brachial Plexus Injuries and other pediatric congenital deformities.

At the same time, the Hand Center is pressing forward on significant translational research investigations. In 2016, Dr. Pensy began work on two Department of Defense-funded studies in collaboration with Johns Hopkins



“Now, any of our attending physicians can see a patient with a new injury or hand condition and then literally walk that patient down the hallway to meet the occupational therapist and have a team huddle to discuss the treatment plan.” — Raymond A. Pensy, MD

Medicine. One examines peripheral nerve trauma through the Major Extremity Trauma Research Consortium (METRC). A second concurrent randomized study is looking at a growth hormone analog used to stimulate nerve regeneration. “We’re one of the core primary sites for this study because we get the lion’s share of peripheral nerve trauma patients at our Center,” notes Dr. Pensy.

POISED FOR GROWTH

Ebrahim Paryavi, MD, MPH, who joined the Hand Center’s team in 2016, believes that the Center is poised for significant growth. A board-certified orthopaedic surgeon who specializes in hand surgery and orthopaedic traumatology, Dr. Paryavi received his medical degree and completed his residency in Orthopaedic Surgery at the University of Maryland School of Medicine. “Our trauma and reconstructive services are unique in treating polytrauma patients with associated hand injuries, while providing reconstructive microsurgeries for injured extremities,” he says. “We are rapidly gaining a reputation for managing a broader spectrum of more difficult cases.”

With the addition of Dr. Paryavi, the Center’s hand surgeons continue to build and grow a full spectrum of microsurgical and microvascular reconstructive capabilities, to include coverage of acute and chronic wounds associated with severe trauma, transfer of vascularized bone grafts for non-union repair, transfer of functional muscle for severe upper and lower extremity injury, nerve grafting, repair, and transfer, as well as acute revascularization and replantations of arms, hands and fingers.

Given this broad scope of experience, the Center has been rapidly expanding its sphere of clinical influence throughout the state, receiving a growing number of acute hand surgery referrals from regional hospitals in Southern Maryland and the Eastern Shore. “The word is getting out that we can care for any patient, regardless of age, acuity, or condition,” says Dr. Pensy.



The Hand Center team: L to R: Ebrahim Paryavi, MD, Assistant Professor of Orthopaedics; Joshua M. Abzug, MD, Associate Professor of Orthopaedics; Ngozi Akabudike, MD, Assistant Professor of Orthopaedics; Raymond A. Pensy, MD, Assistant Professor of Orthopaedics. (Not pictured: W. Andrew Eglseder, MD)

CLOSE TO HOME

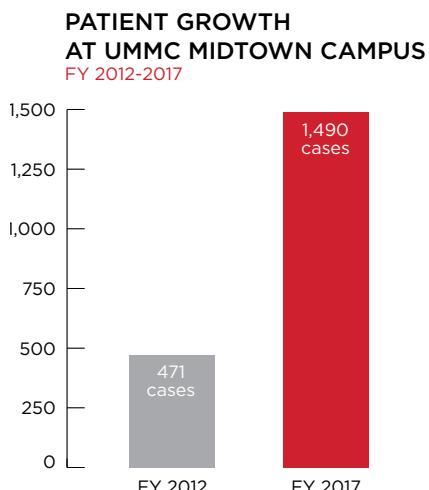


When it opened in 1881, the Baltimore Medical College quickly gained a reputation for providing the local neighborhoods of Mount Vernon and Bolton Hill with exceptional medical care.

Fast forward more than one hundred years and much has changed in the make-up of its surrounding communities, but the mission of the hospital—now the University of Maryland Medical Center Midtown Campus—has remained focused on the delivery of high-quality care.

For **Dr. Marcus F. Sciadini, MD**, a board-certified orthopaedic surgeon who specializes in orthopaedic traumatology and complex fracture care, Midtown is “a very pleasant place to work. There’s a special sense of community here, thanks to our tight-knit medical staff.” Today, as the Chief of Orthopaedics there, he

oversees a program that in the past two years has shown remarkable growth, with patient numbers rising by 216% in the last five years.



216% growth in orthopaedic surgical cases at UM Midtown, 2012-2017

However, this spike in volume is not by chance, but by design to benefit patients. As Dr. Sciadini explains, “It’s part of our overall strategy to reduce the pressure on our trauma operating rooms at the Shock Trauma Center (STC), where there’s a constant unpredictable flow of patients arriving with acute trauma injuries that need immediate emergent surgery.” Up to that point, Orthopedics physicians also were doing the bulk of their elective surgeries in orthopaedic trauma at STC and at the University of Maryland Medical Center. Scheduling both emergent and elective orthopaedic surgeries in a finite number of operating rooms became increasingly challenging, especially in resolving cases in a timely fashion.

“THE RIGHT DECISION”

“With STC operating at near capacity, and the accessibility of Midtown with its set of newly renovated operating rooms just ten minutes away, it just made sense to shift our elective orthopaedic practice there,” says Dr. Sciadini. “We made the right decision. Midtown has become an indispensable resource for us, in terms of growing our patient volumes, taking great care of patients, and getting surgeries scheduled quickly.” He points out that if he sees a patient in his professional office



“Midtown has become an indispensable resource for us, in terms of growing our patient volumes, taking great care of patients, and getting surgeries scheduled quickly.” —Marcus F. Sciadini, MD

on a Wednesday, he often can schedule that patient for surgery the following Tuesday. “This is great for the patients, because they don’t have to wait.”

Midtown’s Orthopaedic program also offers an expanding number of surgery options, from sports medicine, joint replacement, trauma, and oncology to shoulder and elbow, with spine and hand surgeries soon to come. The program employs the latest procedures and minimally invasive treatments to help shorten patient recovery. “We can provide literally any kind of orthopaedic surgery at Midtown in relatively short order,” says Dr. Sciadini. “Our goal is to have a full-service orthopaedic program here to provide timely orthopaedic consultation to the Midtown Emergency Department and other members of the medical staff, as well as to manage our increasing volume of elective cases.” Leveraging the program’s success is the onsite presence of a podiatry service and presence of two supporting programs—Podiatry Associates and the University of Maryland Rehabilitation Network (UMRN). UMRN works closely

with Midtown’s orthopaedic specialists to provide state-of-the-art services and therapy for patients with orthopaedic injuries.

GROWING SUCCESS

Planning also is underway for establishing a new geriatric fracture service. This multidisciplinary service would combine orthopaedic care with geriatric rehabilitation for older and frailer individuals

who could have multiple medical problems. “We don’t have a center like this anywhere in our Baltimore City locations, so Midtown would be the perfect place for it,” says Dr. Sciadini.

While judicious in his strategic management of his program’s continued growth and high service standards, Dr. Sciadini clearly is bullish on its future. “I think the sky is the limit here in how we could expand Orthopaedics’ Midtown presence,” he says.



Marcus Sciadini, MD (R) discusses a patient treatment plan with his Orthopaedics team at UMMC Midtown.

A NEW GAME PLAN, A GREATER FIELD OF PLAY

For decades, the Sports Medicine team in the Department of Orthopaedics has been recognized as a leader in providing a full spectrum of state-of-the-art sports medicine care, including innovative injury prevention, specialized rehabilitative strategies, and advanced surgical techniques, to weekend and professional athletes alike. The team, which includes **Craig Bennett, MD**, **Frank Henn, MD**, **Jonathan Packer, MD**, **Farshad Adib, MD**, and **Claudia Dal Molin, D.O.**, not only serves as the Official Medical Provider of Maryland Terrapin Athletics, but also provides sports medicine services to nearly two dozen area high school as well as at five practice locations throughout Central Maryland.

Given the growing reputation of its Sports Medicine service, the department recently unveiled a new comprehensive Program in Sports Medicine, which formalizes the current scope of sports medicine activities while improving interdisciplinary collaboration in research, clinical care, and education. UM School of Medicine departments participating in the new program include Orthopaedics, Family & Community Medicine, Physical Therapy and Rehabilitation Science, Pediatrics, Neurology, Psychiatry, and Emergency Medicine.

The new program, which will be based within the School of Medicine, will pursue three areas of focus:

- **Patient Care**, by co-locating providers at the same clinical environments and practice locations to stimulate increased collaboration and referrals, while promoting greater access through a common call center and shared operational teams;
- **Research**, through monthly research conferences organized for Sports Medicine interested faculty to encourage development of interdisciplinary proposals that can compete effectively for federal funding, and to stimulate clinical and basic science research activity in partnership with scientists at



Set to open in 2019 — the new Center for Sports Medicine, Health & Human Performance.

According to a 2014 study, one in four adults in the US actively participate in sports activities. An additional 21.5 million kids aged 6-17 engage in team sports. As a result, nearly 2 million Americans end up in their local emergency department with sports-related injuries every year, ranging from slight (sprained ankle) to serious (brain trauma).

both the University of Maryland College Park and Baltimore campuses;

- **Education**, with the expansion of regular interdisciplinary educational conferences for learners at all levels, including undergraduate students, medical students, graduate students, physical therapy students, residents, and fellows.

"By creating a Program in Sports Medicine modeled after the School of Medicine's Programs in Trauma and in Cancer, we are encouraging a multidisciplinary approach to the challenges associated with care for athletes and physically active individuals," says **Andrew Pollak, MD, James Lawrence Kernan Professor and Chair of the UM SOM Department of Orthopaedics**. "We have to be proactive and flexible in developing complimentary multidisciplinary programs, to make sure from educational, clinical and research perspectives, we're not just approaching problems from a prism of a single specialty but the global needs of the patient."

OPENING IN 2019

The new Program in Sports Medicine will complement another central initiative to the south on the University of Maryland, College Park (UMCP) campus. In 2019, the Center for Sports Medicine, Health & Human Performance (CSMHHP) will open its doors as part of the \$155 million renovation of UMCP's Cole Field House. A partnership between the University of Maryland, Baltimore and UMCP as well as an MPowering the State initiative, CSMHHP will feature a hi-tech diagnostic assessment and training unit for student-athletes; a state-of-the-art research center to launch studies in muscle physiology, neuroscience and bioengineering; and a modern clinical facility providing advanced orthopaedic care and occupational health support for a broad spectrum of patients in the Washington, DC region.

The Program in Sports Medicine team is clearly enthusiastic about all the opportunities the new Center will offer. "What I'm most excited about is having the chance to work and collaborate onsite with colleagues who are

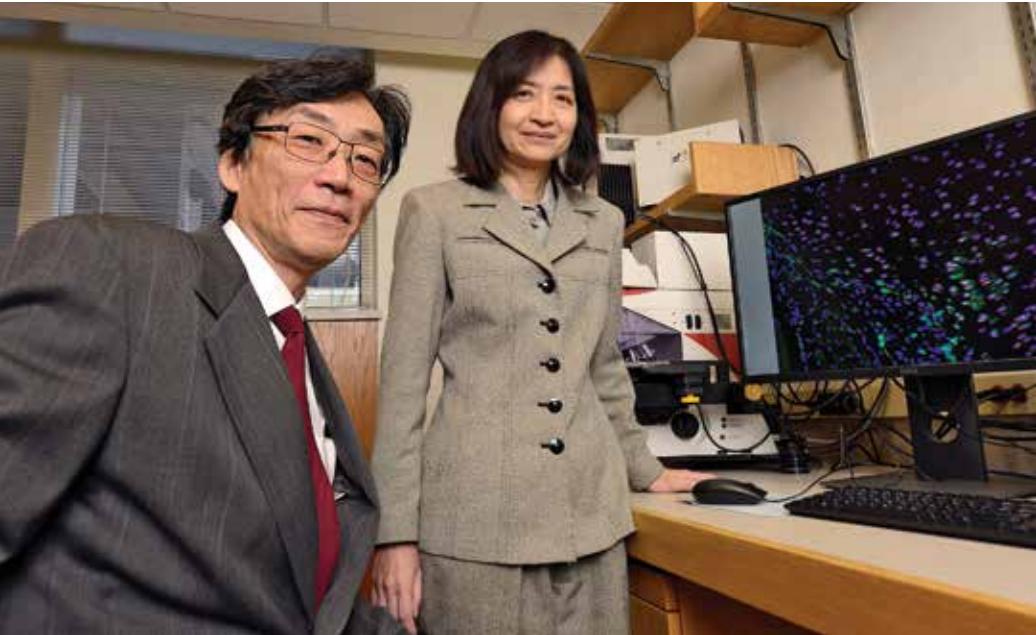


Craig Bennett, MD (R) at a University of Maryland Terrapins football game.

on the cutting edge of research in musculoskeletal care and brain injury," says Dr. Henn.

"At the new Center, we will be able to do sophisticated strength testing, strength training, and agility evaluations," notes Dr. Bennett. "And having an expanded training area where my athletes can train indoors all year round as they recover from surgery or injury is going to be a huge factor. It will take us to the next level."

MAKING CONNECTIONS



Soon after they first met in a graduate school lab at Japan's Osaka University in the late 1980s, **Masahiro Iwamoto, Ph.D., D.D.S.** and **Motomi Enomoto-Iwamoto, Ph.D., D.D.S.** discovered that they shared a common path. In one regard, that led to marriage. But in another, they both were drawn to rich and productive careers in research that while different, both focused on the tantalizing secrets possessed by a single type of human cell.

The cell in question, called a chondrocyte, is the only cell present in cartilage, that rubbery but durable tissue that serves as an essential structural component of the human body—especially in its role as shock absorbers lining the endpoints of bone in our various joints. Important as that all is, chondrocytes also play a unique role in formation of the human body's skeletal framework. Simply put, these cells trigger a

biological process that causes cartilage tissue to remake itself into solid bone. This process, called endochondral ossification, is essential for the development of bones in an unborn baby by the end of the first trimester. As basic science researchers, the Iwamotos are focused on understanding these hidden mechanisms behind endochondral ossification coupled with the generation of bone as well as the

Dr. Masahiro Iwamoto (L) and Dr. Motomi Enomoto-Iwamoto (R) are exploring the properties of cartilage cells.

preservation of joint cartilage. As Dr. Masahiro Iwamoto explains, "From a basic research point of view, I am very interested in the mechanism of how and why articular cartilage (joint cartilage) is formed. The majority of our skeleton starts off originally as cartilage but eventually is replaced by bone, except for the cartilage that remains as a buffer in our joints. Why does that happen? By understanding the mechanism of the formation of this unique cartilage, we might be able to find a cure or a way to delay the progression of arthritis, which involves the wearing away and loss of joint cartilage."

RENNED RESEARCHERS

Dr. Iwamoto is an acclaimed scientist whose studies have focused on the development of joint cartilage and the regulation of bone growth, in collaboration with his spouse, Dr. Motomi Enomoto-Iwamoto. In addition, Dr. Iwamoto has a strong passion for developing clinical tools that aid in the repair of muscle and the prevention of skeletal deformity. Dr. Motomi Enomoto-Iwamoto herself is a renowned investigator for her work in cellular

“Translating our research outcomes to treat clinical orthopaedic needs has been our ongoing dream. This was our major motivation in our decision to move here to the School of Medicine.” —Masahiro Iwamoto, Ph.D., D.D.S.

and signaling mechanisms that regulate skeletal development and function, as well as explorations of the cellular pathways that lead to cartilage tumors and osteoarthritis. Currently, she is pursuing studies on how local cells residing in injured cartilage and tendons change their biological function, and how preventing this change could result in improved healing of those tissues.

SEEKING COLLABORATION

While they have been engaged in similar lines of research over the past 20 years (“On some experiments we collaborate and on others we work independently,” he notes), both researchers have long wanted to work in a dynamic and collaborative academic setting where their discoveries could be translated to actual clinical applications. In FY 2017, they found that setting as new research faculty members in the Department of Orthopaedics at the University of Maryland School of Medicine. Both were recruited to enhance the Department’s and the School of Medicine’s capabilities in the areas of bone, tendon and cartilage research with a long-term goal of becoming more competitive

for Program Project awards in this area from the National Institutes of Health (NIH). The Iwamotos bring with them more than \$2.7 million in total research funding from the NIH and other organizations (\$675,000 annually).

For their part, both researchers could not be more delighted. “Translating our research outcomes to treat clinical orthopaedic needs has been our ongoing dream,” says Dr. Masahiro Iwamoto.

“This was our major motivation in our decision to move here to the University of Maryland School of Medicine. The Department of Orthopaedics is very serious about connecting basic research and clinical orthopaedics. It is unusual to find a department that is so dedicated to this goal. It is very encouraging, and we both are very excited.”



THE CUT ABOVE



“Start at the top and work your way up.” For those exceptional and yes, lucky few accepted at the Orthopaedic Surgery Residency Program at the University of Maryland, this expression has a special meaning. With its growing national reputation, the five-year program attracts hundreds of eager applicants every year, each vying for one of six available positions annually.

“Entrance to our program is ultra-competitive,” affirms Residency Director **R. Frank Henn, III, MD**. “We had over 800 applications in 2016 and over 25 students from other medical schools choose to participate in an away rotation at our institution. We consistently match the very best students.”

Still, acceptance is just the first step in this rigorous training program. First-year (PGY-1) residents spend an intensive 12 months becoming familiar with the department’s

range of subspecialties. This schedule includes a month-long formal surgical skills program first launched collaboratively in 2013 with other leading local institutions, including Johns Hopkins, Georgetown, Union Memorial, and beginning this year, George Washington and Howard Universities. During the program, resident interns are given “protected time” during the morning hours to focus on surgical skills training with faculty from all of the participating institutions—an

Frank Henn, MD leads discussion with UM SOM Orthopaedic Surgery residents.

invaluable opportunity for residents to work closely with those specialists who have expertise in the particular area of training.

Dr. Henn points out that the surgical skills program has been extremely well received, so much so that all of the orthopaedic residency programs in the area now participate in it.

“We’ve been a leader in hosting many of these sessions,” he notes. “What’s more, our faculty has been heavily involved with the educational component of the program. It’s really been a model for introductory skills training for orthopedic residents.”

HIGH-TECH TRAINING

Over the past year, the Department also has introduced new technology tools to enhance surgical training for residents. Two high-fidelity simulators for orthopaedic trauma allow residents to practice a variety of advanced surgical procedures under realistic settings while building trauma team experience. In addition, residents have developed research studies based on the simulator experience, one of which was recently presented at the Orthopaedic Trauma Association and American Academy of Orthopaedic Surgeons.



“Our program is incredibly well balanced, covering the full breadth and depth of orthopaedics from the routine to the ultra-complex.” —Frank Henn, III, Residency Director



MENTORING INITIATIVES

In 2016-2017, residents stepped up their involvement in mentoring medical students. Through three forums—the SOM Orthopaedic Interest Group, the Sports Medicine Interest Group, and the local chapter of the Student National Medical Organization—residents have organized and presented several workshops to medical students on orthopaedic training, including suturing, splinting, casting, and orthopaedic simulation. On the clinical side, the Residency Program has instituted a systematic shadowing program for interested UM SOM medical students to spend time in the office and the OR with Orthopaedics faculty.

Resident research efforts have gained even greater momentum in the past year, thanks to the initiation of a formal research program that includes both didactic and research components. Residents first develop and submit their own research projects for review, then take on that project to its completion, followed by a final presentation of results. All projects are “real-world” efforts, and many are multi-year projects. The residents benefit from input from multiple researchers, including a dedicated faculty mentor, and compete for research grants. In addition, an intra-departmental grant funding program is in place to assist residents in completing research, and the

Department supports residents for presentations at national meetings. In addition, the research program has accommodated a record number of undergraduate medical students in summer research programs during their summer between first and second years.

The Department recently received approval from the Residency Review Committee in Orthopaedics to expand the number of accepted residents from five to six per year. “Our program is incredibly well balanced, covering the full breadth and depth of orthopaedics from the routine to the ultra-complex,” says Dr. Henn. “The word is getting out.”

FELLOWS IN EXCELLENCE

For doctors-in-training, achieving full academic credentialing can be an arduous climb, lasting 10 years or more. The summit experience of that ascent is the fellowship—a highly intensive program that focuses on a single sub-specialty, where fellows participate in both didactic (classroom) and clinical training as well as directed research. Through the UM SOM Department of Orthopaedics, aspiring clinicians and researchers can take advantage of two exceptional fellowship programs—that is, if they can make the grade. Both fellowships are highly competitive and accept only the most exceptional candidates in their respective fields.



Dr. Sciadini discusses patient treatment plans with Orthopaedic Trauma Fellows, as (L to R) Drs. Manson, O'Toole, and Pensy listen in. Fellows include Suneel Bhat, MD, Mark Gage, MD, Michael Maceroli, MD, G. David Potter, MD, and Brent Wise, MD.

STC ORTHOPAEDIC TRAUMATOLOGY FELLOWSHIP

Established in 1979, the R Adams Cowley Shock Trauma Center (STC) Orthopaedic Traumatology Fellowship Program brings together the historic strengths and innovative vision of the Department of Orthopaedics and the University of Maryland's famed R Adams Cowley Shock Trauma Center. The first orthopaedic fellowship program in the nation to be accredited by the Accreditation Council for Graduate Medical Education (ACGME), it offers five post-residency fellowships positions each year.

While its intensive clinical training experience in Shock Trauma is a major draw of the program, its didactic component has grown equally strong, according to Fellowship Director **Robert O'Toole, MD**, who also is The Hansjorg Wyss Professor and Head of the Division of Orthopaedic Traumatology at the School of Medicine.

Introduced in 2017, the fellowship's *Educate the Educators* is a novel teaching initiative, providing fellows with the opportunity to become effective educators through intraoperative, didactic, and cadaver teaching experiences with rotating residents. Observing faculty provide feedback following each session. "We've really strengthened this program over the last year to make sure that our fellows are skilled at running

“This attitude of curiosity and open-mindedness to new approaches or techniques to solve a problem is pervasive and a real strength of our fellowship.” — Robert O’Toole, MD

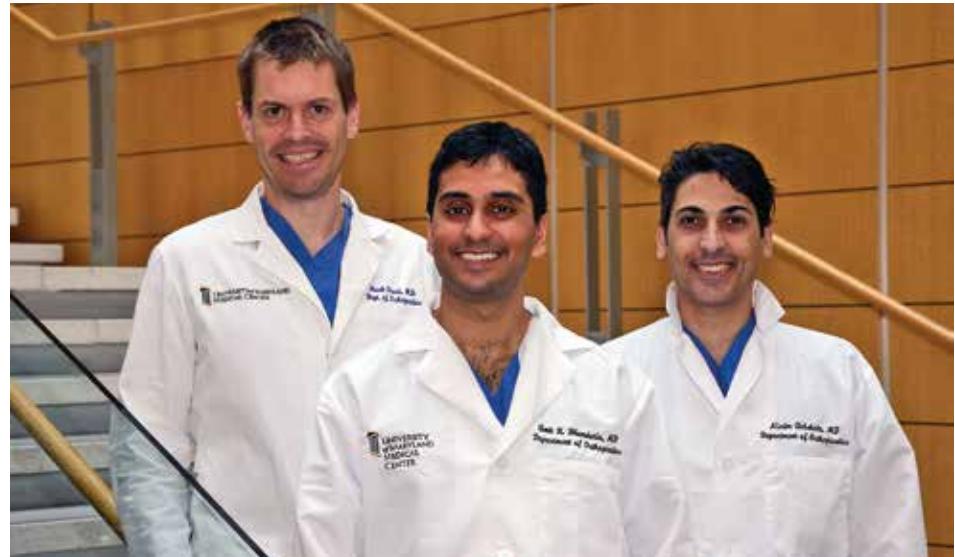
anatomic dissection and sawbones (fracture repair) courses,” notes Dr. O’Toole. In addition, fellows participate in a targeted research program where they can choose from a list of more than 15 projects and develop research skills.

“We are very proud of what this fellowship has accomplished over time, but we feel that there are always ways to make it better,” says Dr. O’Toole. “This attitude of curiosity and open-mindedness to new approaches or techniques to solve a problem is pervasive and a real strength of our fellowship.”

ORTHOPAEDIC SPINE SURGERY FELLOWSHIP

Though it selects just three ACGME-accredited candidates each year, the department’s Spine Surgery Fellowship is growing “exponentially” in terms of its popularity, according to Fellowship Director **Steven Ludwig, MD**.

“We are now getting more applicants with both orthopaedic and neurosurgical backgrounds from the most prestigious residency programs who want to participate in our fellowship,” notes Dr. Ludwig, who is also the Professor of Orthopaedics and Head of the Division of Spine Surgery. “We actively compete with the leading spine fellowship programs in the country.”



Spine Surgery Fellows (L to R) Stephen Clark, MD, Nissim Ackshota, MD, Amit Bhandutia, MD

In 2017, the program added a fourth fellowship position—a dedicated Spine Research Fellow who will support the Spine division in coordinating the research efforts of residents and fellows. Each fellow is responsible for giving a 15-20-minute monthly presentation on an assigned topic, as well as for one research project and one written paper (a case report, article, or book chapter) during the course of the fellowship.

Along with attending rigorous didactic sessions, monthly conferences, and Grand Rounds, fellows currently rotate through a rich variety of clinical settings, including the University of Maryland Medical Center, the

R Adams Cowley Shock Trauma Center, the Baltimore VA Medical Center, and Baltimore Washington Medical Center. Working side by side with orthopaedic spine and neurosurgical faculty in and out of the operating room, fellows receive extensive mentoring in managing, treating, and operating on patients with complex traumatic spinal injuries, degenerative disorders, and deformity, while gaining experience with the most advanced spinal instrumentation systems, technology, and techniques.

“This program ensures that we are doing an outstanding and very effective job of training the next generation of leading spine surgeons,” says Dr. Ludwig.

ARMS OUTSTRETCHED



Joshua Abzug, MD, surrounded by happy campers from 2016's Camp Open Arms.

For a child with a congenital or traumatic limb difference, the world can feel like a challenging place—especially in terms of “fitting in” with other children during play activities. UM pediatric orthopaedist **Joshua M. Abzug, MD** understands their feelings all too well. As Deputy Surgeon-in-Chief at the University of Maryland Children’s Hospital (UMCH), he interacts with such children and their parents on a daily basis through UMCH’s Pediatric Hand and Upper Extremity Program, the only dedicated pediatric upper extremity service in the region treating a wide array of birth disorders of the arms and hands. “For a child with a congenital difference of the hands or upper extremity, the ability to move freely and play just like their peers, especially in everyday activities such as sports, is daunting and, quite literally, sometimes out of reach,” he notes.

Dr. Abzug came to realize that the solution to their sense of isolation lay beyond a medical response. Two years ago, with the support of UMCH and the University of Maryland School of Medicine, he founded Camp Open Arms, a two-day summer day camp experience, exemplified in spirit by its motto, “Strength, Courage and Determination.” While at the camp’s Northern Baltimore County location, campers aged 4 to 9 participated in a range of activities guided by volunteer counselors, including nature hikes, games, and creating crafts, all while being surrounded by other children with limb differences. Campers’ parents also were invited to engage in discussions with specialists on new advances in care for their children.

ROUSING SUCCESS

The rousing success of the first Camp Open Arms inspired Dr. Abzug to take the concept forward. In the winter of 2015, he staged a bowling reunion party for the previous summer’s campers and their families. During the following summer of 2016, the main camp schedule was extended to three days (Thursday-Saturday), accommodating twice as many

“It is my personal goal to help every child—whether they are healing from a broken bone or facing more complex issues such as a brachial plexus birth palsy or limb difference—reach their full potential and lead healthy and fulfilling lives.” — Joshua Abzug, MD

campers as previously. The camp’s carnival theme featured rides, games, and prizes, along with visits by the Zoomobile and an ice cream truck, art activities presented by local arts organization Art with A Heart, and even an onsite caricaturist who did portraits of the campers. The final Saturday, designated Family Day, hosted more than 125 adults and an additional 20 children with limb differences. Campers subsequently attended a reunion in the fall at the Greenspring Racquet Club, where they were given tennis lessons by a tennis pro with a limb difference.

GENEROUS DONORS

Plans already are in development for 2017’s Camp Open Arms, thanks to generous donors like the Deputies of the Cecil County Sheriff’s Office, who raised \$15,000 for the camp during No-Shave November 2016. (Individuals and organizations interested in supporting Camp Open Arms should contact the University of Maryland School of Medicine Office of Development at 410-706-8503.)



“It is my personal goal to help every child—whether they are healing from a broken bone or facing more complex issues such as a brachial plexus birth palsy or limb difference—reach their full potential and lead healthy and fulfilling lives,” states Dr. Abzug. “Camp Open Arms is not only a place of acceptance and happiness for children with limb differences, but also for their parents and loved ones, who build camaraderie and hope together.”



A NEW PARADIGM FOR PATIENT CARE



An iconic feature of Orioles Park at Camden Yards, the Baltimore & Ohio Railroad Warehouse has served in a variety of roles since its completion in 1905. Today, as a celebrated example of creative adaptive reuse, the warehouse is now home to the most advanced clinical orthopaedics facilities in the region.

From its chic, comfortable waiting area with flat-screen TV and coffee bar to its state-of-the-art diagnostic imaging suite, University of Maryland Orthopaedics at the Camden Yards is designed specifically to deliver the most efficient and effective outpatient care across a broad spectrum of orthopaedic conditions. In that regard, a comprehensive set of onsite services address the diagnosis, treatment and rehabilitation of musculoskeletal conditions from the simple to the complex. Along

with 12 private exam rooms, Camden's 10,000-square foot space also offers a dedicated casting area and Durable Medical Equipment (DME) fitting.

"It is important to note that Camden is not just an orthopaedics practice site, but a multidisciplinary practice site," says **Andrew Pollak, MD, James Lawrence Kernan Professor and Chair of the Department of Orthopaedics.** "In addition to orthopaedists, we have internists, neurosurgeons, and emergency

medicine physicians. Camden is about breaking down the silos between the departments to create functional interdisciplinary programs that maximize our ability to take care of patients."

PT ON SITE

To illustrate his point, Dr. Pollak points to the onsite presence of a rehabilitation and physical therapy facility resembling a sophisticated health club, staffed by physical therapists specially trained in manual therapy, occupational therapy, hand therapy, and pediatric physical therapy. **Peter D. Bowman, PT, DPT,** of the UM SOM Department of Physical Therapy and Rehabilitation Science oversees the rehabilitation service there. He points to his proximity to clinicians as an added plus for his patients. "Having the ability just to read a physician's notes on a patient can help me get an idea of the patient's starting point," says Bowman. "Then if I see a problematic issue, I can just walk over and talk directly to the physician involved. Having this close access to the physician



“Camden is about breaking down the silos between the departments to create functional interdisciplinary programs that maximize our ability to take care of patients.” —Andrew Pollak, MD

is great for me—and an even better benefit for the patient, because the physician and I can create a more comprehensive and individualized treatment plan.”

How unusual is it to have this arrangement at a single clinical site? “I don’t know of this interdisciplinary relationship between orthopaedics and physical therapy existing anywhere else,” says Bowman. “Having both groups of highly trained professionals working together, we can move the clinical practice and research efforts of orthopaedics in a new direction. It’s very exciting to be involved in this practice.”

INTEGRATED MODEL

Dr. Pollak agrees. “This location allows us for the first time to provide physical therapy services in concert with our musculoskeletal care services,” he says. But in the big picture, Dr. Pollak believes that it’s just one facet of a larger vision. “I see the integrated Camden Yards model as one that will inform all of our other present locations,” he notes, “as well as one we want to extend into College Park at the new Center for Sports Medicine, Health & Human Performance. It is a new paradigm for multidisciplinary care.”



SPECIALTY PROGRAMS — UNIVERSITY OF MARYLAND ORTHOPAEDICS AT THE CAMDEN YARDS

- Spine Center
- Orthopaedic Traumatology
- Shoulder and Elbow Program
- Sports Medicine Service
- Neck Pain
- Musculoskeletal Oncology Service
- Hand and Wrist
- Hip and Knee Joint Replacement Services
- Pediatric Orthopaedic Service
- Foot and Ankle
- Physical Therapy

THEY'VE GOT YOUR BACK

Statistically speaking, back pain is on the rise. Globally, 700 million people suffer from this condition, which is the leading cause of disability throughout the world. Here in the US, back pain is the third most expensive condition in our health care system after heart disease and diabetes. And with approximately 75 million baby boomers nearing retirement, the volume of aching backs is set to grow.



Steven Ludwig, MD, Division Head of Orthopaedic Spine Surgery (left), performs an MISS procedure.

The widening impact of back pain is top of mind for the Orthopaedic faculty members of the Spine Division. The division is led by **Steven C. Ludwig, MD**, Chief of the Division of Spine Surgery in the Department of Orthopaedics. Joining him are **Kelley E. Banagan, MD**, **Daniel E. Gelb, MD**, and **Eugene Y. Koh, MD, PhD**, all of whom limit their practice to disorders in all regions of the spine—cervical, thoracic, and lumbosacral. As a team, they are highly experienced in treating spinal degenerative disease such as lumbar spinal stenosis, as well as traumatic disorders and deformity like scoliosis.

PATIENT FOCUSED

"Together, we employ a multidisciplinary approach to treating the complex spinal problems of patients," says Dr. Ludwig. "To do so, we regularly collaborate with other service lines, including Neurosurgery, Medical and Radiation Oncology, Pain Management, Physical Therapy, and Anesthesiology."

This patient focus also extends to weekly conferences, where the case of every preoperative patient is discussed by the surgical team and nurse practitioners. "We have introduced this specialized approach across our service line to ensure that nothing is missed," notes Dr. Ludwig. "We

"We are the leaders in performing more complex out-of-the-box minimally invasive procedures." -Steven C. Ludwig, M.D., Chief, Division of Spine Surgery

want everyone involved to be thoroughly familiar with every patient we treat to ensure that each receives the best care."

To better measure quality care standards across all operations, the Spine Center schedules regular collaborative reviews that weighs not only hospital-based metrics, but now patient-reported outcome measures as well. According to Dr. Ludwig, no other hospitals in the area are collecting such patient self-assessment data, which he calls "very powerful information."

"A hospital-reported outcome of one day with no readmission can seem great, but if the patient reports that she is still miserable and hasn't gotten better, then there's a clear disconnect between the two," says Dr. Ludwig. "Through this quantified data, we can set expectations for patients in terms of their rate of recovery or even choice of physicians."

COMPLEX MISS LEADERS

The Spine Division also is nationally recognized for its groundbreaking work in minimally invasive spinal surgery (MISS). The procedure itself has generally grown in popularity in recent years with surgeons and patients alike, as it accomplishes the same desired surgical outcome while decreasing



UM Spine Service physicians (left to right): Dr. Daniel Gelb (seated), Dr. Steven Ludwig, Dr. Eugene Koh, Dr. Kelley Banagan (seated).

risk, reducing post-operative pain, and promoting shorter recovery times for their patients.

What is distinctive about the Spine Division's track record with MISS? "We are the leaders in performing more complex out-of-the-box minimally invasive procedures," states Dr. Ludwig. The difference, he points out, is a matter both of scale and difficulty. While other surgical centers employ MISS for smaller procedures to treat minor degenerative conditions of the spine, the Spine Center has raised the bar significantly in addressing worst-case injuries or conditions through MISS.

"Our center has spearheaded that leap in applying MISS to difficult surgical problems," states Dr. Ludwig. "We have introduced the world to using minimally invasive procedures for traumatic conditions of the spine." Spine Center surgeons today regularly use MISS in treating the sickest patients and historically complex lower lumbar problems involving traumatic injuries, tumor reconstruction, or scoliosis reconstruction. "By achieving that same range of MISS benefits even with the most challenging cases, everyone wins," says Dr. Ludwig. "But most importantly, the patient wins."

BEATING THE SPREAD OF BIOFILMS

The description sounds like a page straight from a 1950s monster movie script—an insidious, invisible creature that slips inside of the human body, spreading a toxic, unstoppable goo. Unfortunately, it's no fiction. Biofilms are in too many cases a deadly reality; in fact, over half a million people die each year due to various biofilm infections.



Theodore Manson, MD — SOM (L) and Mark Shirtliff, PHD — SOD examine a biofilm sample for study.

But now, due to a unique partnership between a UM School of Medicine orthopaedic surgeon and a School of Dentistry researcher, biofilms may have met their match. For the past 18 months, **Theodore Manson, MD** (SOM) and **Mark Shirtliff, PHD** (SOD) have been working to develop a groundbreaking diagnostic device that can detect the presence of a biofilm infection in just minutes. Other contributors to this project include **Robert O'Toole, MD** (Orthopaedics) and **Manjari G. Joshi, MD** (Division of Infectious Diseases).

BIOFILMS DEFINED

Exactly what is a biofilm? It starts when a bacterial organism attaches itself to an accommodating surface and begins to reproduce. In order to stay in one place as they grow in number, the bacteria produce a sticky layer of material called extracellular polymeric substance (EPS). As the bacterial population grows, so does the production of EPS, adding additional layers to produce an enclosed, antibiotic-resistant environment—a biofilm.

Being bacterial in origin, biofilms can cause a range of problems in the human body, from pesky to fatal, depending upon their particular microbial type—from the sticky plaque that forms along the gum line of teeth to the choked lungs of cystic fibrosis

“It takes this kind of collaboration to make translational discoveries like these possible. The support of the Department of Orthopaedics has been phenomenal.” — Mark Shirtliff, PHD

victims. However, the destructive effects of biofilms have a particular impact on those patients who have undergone a joint replacement, only to discover that they have contracted a prosthesis-associated biofilm infection. According to the US Centers for Disease Control and Prevention, more than one million patients were diagnosed with such infections in 2010.

INFECTION THREAT

For orthopaedic surgeons, such biofilm infections, while rare (about a 1% occurrence in all such procedures), still pose a danger and huge complications for their patients. For one, they are difficult to diagnose. In order to ascertain whether a patient actually has an infection, physicians must take several tissue biopsies to test for the bacterial presence, a hit or miss process that can take up to two weeks. If a pathogen is confirmed, the chances of curing that implant infection are quite low, given a biofilm's resilience, usually resulting in the need to remove the affected prosthesis and a replacement surgery.

The new diagnostic device under development by Drs. Shirtliff and Manson represents a giant leap forward in such critical diagnoses.



Biofilm sample readied for testing.

Together, the researchers have pinpointed a singular protein “fingerprint” (called an antigen) that each type of infection-causing bacteria emits. The presence of that particular bacterial antigen in turn triggers an immune response in the human body, causing a specific number of unique human antibodies to attack it. By copying this biochemical process, the researchers have created a prototype that closely resembles a pregnancy test. When a drop of blood from an affected patient is placed on the device (called CelerDX), physicians will receive an accurate diagnosis in

five minutes that reveals whether an infection is present, and what specific type of bacteria infection it is. So far, Drs. Shirtliff and Manson successfully have created a profile test for staphylococcus bacteria, which causes 60% of biofilm infections. They also have several others in development.

COLLABORATION “AMAZING”

Both researchers are highly enthusiastic about their progress to date. “This research is an amazing collaborative effort involving a basic scientist, two orthopaedic surgeons, and an infectious disease physician from Shock Trauma to attack the problem of infection with joint replacement,” says Dr. Manson. “We’re making rapid progress and ahead of where we thought we would be.” Dr. Shirtliff agrees. “It takes this kind of collaboration to make translational discoveries like these possible. The support of the Department of Orthopaedics has been phenomenal.”

DEFINING THE BEST MEDICINE



When you suffer a fracture, there's potentially more at stake than mending a broken bone. Certain fractures increase the risk of the formation of a blood clot, created when blood flow is slowed through a vein, or the vein itself is damaged. Such clots can be life-threatening if they travel on to the heart, lungs, or brain. According to orthopaedic trauma surgeon **Robert O'Toole, MD**, "The act of trauma can cause patients' bodies to be in a hyper-coagulable state — and much more prone to clotting."

Dr. O'Toole is the Hansjörg Wyss Medical Foundation Endowed Professor in Orthopaedic Trauma at UM SOM, head of the school's Division of Orthopaedic Traumatology, and Chief of Orthopaedics for the University of Maryland Medical Center's R Adams Cowley Shock Trauma Center. He points out that blood clots cause about 300,000 deaths annually in the U.S. For years,

physicians have prescribed low molecular weight heparin, a blood thinner, to many fracture patients to prevent clotting. However, some researchers now suspect that low molecular weight heparin may cause surgical complications in some orthopaedic patients and might even increase bleeding after surgery—and that aspirin may be just as effective at preventing clots in those patients.

"This is an important question, and we just don't know the answer," said Dr. O'Toole. "Patients don't want injections or medications that are expensive, but we don't know what the trade-offs are in the prevention of complications or blood clots between these two common medicines."

\$11M CONTRACT

To answer that question, Dr. O'Toole is serving as the Co-Principal Investigator of a large team of researchers who received funding in 2017 for the study, "A Randomized Pragmatic Trial Comparing the Complications and Safety of Blood Clot Prevention Medicines Used in Orthopedic Trauma Patients." Underwriting this investigation is a \$11.2 million contract from the Patient-Centered Outcomes Research Institute (PCORI), an independent, nonprofit organization that funds research to provide patients, their caregivers, and clinicians with the evidence-based information needed to make better-informed healthcare decisions.

Dr. O'Toole notes that competition for PCORI funding was strong. "We were selected for funding out of a pool of 46 groups that applied and 19 that were invited to submit full proposals," he says. "It was a real compliment to the team of clinicians and researchers that we assembled, along with our collaboration with Johns Hopkins over the last decade, that we were

“I think this study, with its depth and breadth, will go a long way toward giving us useful information that will help us treat patients more safely and effectively.” —Deborah Stein, MD

able to be successful with our very first application to PCORI.”

“Every year in the US, we spend large amounts of money on blood thinners for trauma patients,” states **Theodore Manson, MD**, an originator and co-investigator on the study, “There is a potential for important complications with these anticoagulants, mainly related to bleeding. We don’t know which medicine has the lowest complication rate, but that’s one of the important aspects we’re trying to study.”

LARGEST STUDY TO DATE

The five-year project will partner with 17 other trauma centers around the country and will include 13,000 patients who have suffered fractures, making it the largest study on this topic ever undertaken. Half of the recruited patients will receive injectable low molecular weight heparin, while the other half will receive an oral dose of aspirin. Researchers will

seek to establish which approach works better at preventing clots and reducing deaths from clots. They also will look at whether one medicine is linked to fewer complications that require further treatment for the fracture.

“I think this study, with its depth and breadth, will go a long way toward giving us useful information that will help us treat patients more safely and effectively,” says Co-Principal Investigator on the study **Deborah Stein, MD**, R Adams Cowley Professor in Trauma and Chief of Trauma at the R Adams Cowley Shock Trauma Center.

Dr. O’Toole agrees. “Currently, our faculty are leading a number of multi-center randomized controlled trials at sites throughout the US,” he says. “Few sites in the country have our capabilities, so we want to take full advantage of what we can accomplish. We have the opportunity to make the care we offer patients better, not just in Maryland but throughout the world.”

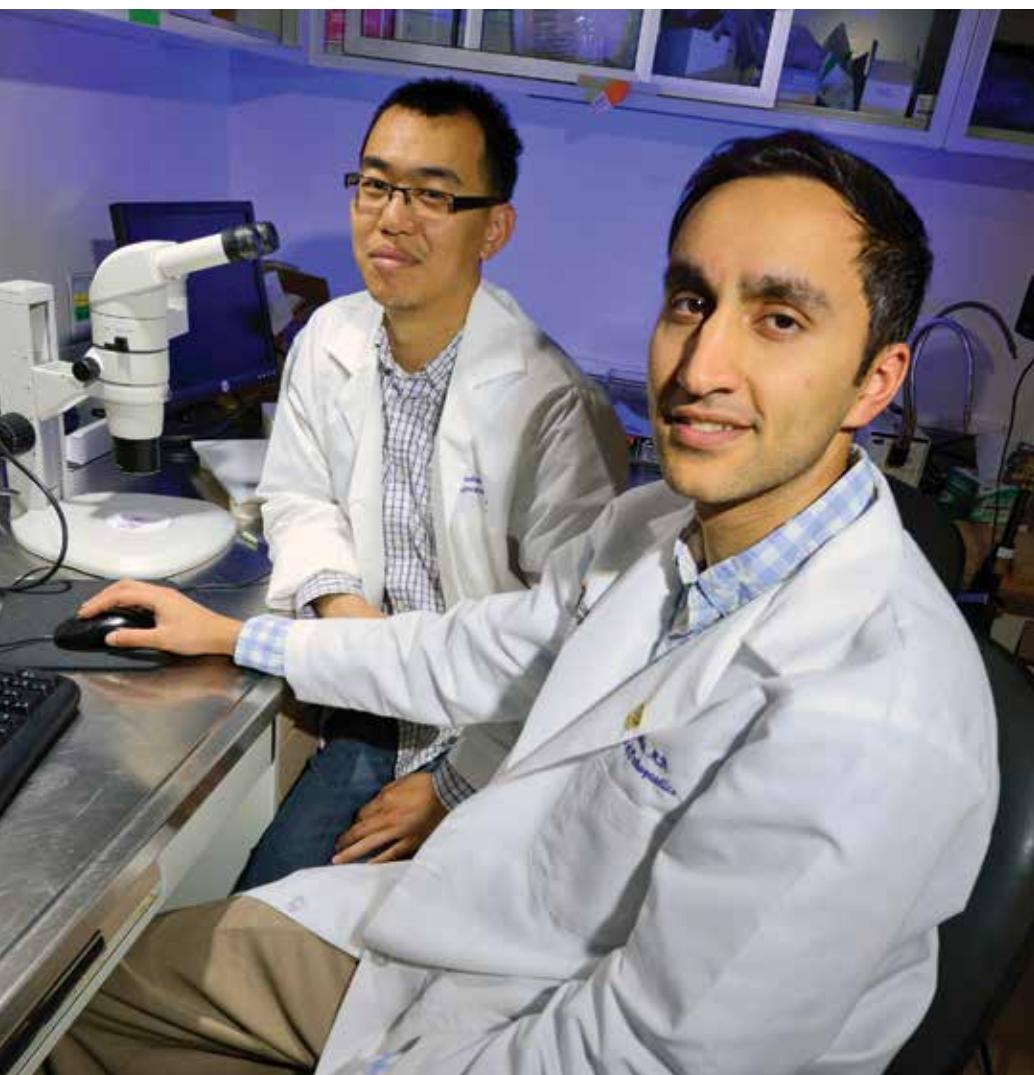


Robert O’Toole, MD, Division of Orthopaedic Traumatology, and Chief of Orthopaedics, University of Maryland Medical Center’s R Adams Cowley Shock Trauma Center

The PCORI study will be managed in partnership with the Major Extremity Trauma Research Consortium (METRC) at the Johns Hopkins Bloomberg School of Public Health. Participating hospitals include the University of Maryland’s R Adams Cowley Shock Trauma Center, Carolinas Medical Center, Harborview Medical Center, Indiana University Health Methodist Hospital, Massachusetts General Hospital, Rhode Island Hospital, San Antonio Military Medical Center, University of Pittsburgh Medical Center, University of Texas Health Sciences Center at Houston, Vanderbilt University Medical Center, and Wake Forest Health Sciences. The study’s scientific committee includes Ted Manson, MD, Gerard Slobogean, MD, Stephen Breazeale, CRNP, and Nathan O’Hara, MHA, from UM SOM; Daniel Mullins, PhD, from University of Maryland School of Pharmacy; Renan Castillo, PhD, Stephen Wegener, PhD, Eliot Haut, MD PhD, Daniel Scharfstein, ScD, Katherine Frey, MPH, and Nancy Kass, ScD from Johns Hopkins University; Reza Firoozabadi, MD, from the University of Washington; and Herman Johal, MD, from McMaster University.

SHOULDERING NEW RESEARCH IN ROTATOR CUFF REPAIR

For the best researchers, the most important investigations often begin with a simple question. **Mohit Gilotra, MD**, Assistant Professor of Orthopaedics, is no exception; as a surgeon-scientist in the Department of Orthopaedics, he specializes in shoulder and elbow surgery. But he is also concerned with why torn rotator cuffs often fail to heal well, even after expert surgery.



(L to R) James Lai, MD and Mohit Gilotra, MD

To explore that question, we need to understand how shoulders work, or not. The shoulder, like other major joints in the human body, has a ball and socket structure involving three major bones—the humerus (upper arm bone), scapula (shoulder blade), and clavicle (collarbone). Attaching the humerus to the scapula is a complex cluster of four muscles and related tendons that together serve to keep the head of the humerus in the shoulder socket, helping the arm to lift and maneuver.

TEARS OVER TIME

But over time, due to degeneration or injury, rotator cuff tendons can be torn away from the humerus, resulting in a weakened arm, chronic pain, and even disability. In 2013, almost 2 million Americans complained of a rotator cuff problem. Individuals over 65 years of age are especially affected, with more than 50% suffering a rotator cuff tear (RCT), either partial or full, at some point. While small tears can be fixed successfully through arthroscopic surgery, repairs to larger RCTs often result in poor clinical outcomes.

Dr. Gilotra's research centers on this segment of the older population—and the fact that those patients with surgical repairs to large RCTs also have a re-tear rate of almost 90 percent in one study. "Obviously, something

“Thanks to our department, I can investigate a problem in the lab that is clearly relevant to the clinical work I do. It’s a unique position I have here. I never get bored.” —Mohit Gilotra, MD

that's not working 90 percent of the time is not a viable solution,” he says. “Often, when someone comes with a big tear, we advise against getting it fixed because the healing rate is so poor.”

In order to discover the possible factors causing this failure rate, Dr. Gilotra has launched a study that examines the biologic changes that occur within a tendon and muscle after an RCT. Following such an injury, the affected muscle will begin to lose its physical bulk quickly as fat replaces muscle fibers, a condition called fatty atrophy. Once this transference occurs, it is irreversible, eliminating the possibility of any recovery of a patient's strength and function. Dr. Gilotra's current investigation is focusing on the formation of this fatty tissue by exploring several avenues of inquiry at once.

FAT AT FAULT

“We are looking at why these tears in the shoulder are unique, in that they cause this fatty atrophy of the muscles there and not in the same way anywhere else in the body,” he says. “In addition, we want to learn to what degree a nerve injury affects or causes fatty atrophy, so when a tendon tears, does that trigger a nerve injury and reaction?”

Dr. Gilotra and his team also hope to discover a medication that will either prevent this fat from forming or else reverse its effects after it appears. “If that medicine does work,” he says, “we want to see if the rotator cuff actually heals better.”

PREVENTING P. ACNES

On another front, Dr. Gilotra is leading a second investigation to discover a better means of preventing bacterial infections from occurring during open shoulder surgeries. The culprit is *Propionibacterium acnes* (*P. acnes*), a slow-growing but stubborn bacterial organism. “It's a big problem with any shoulder surgery, because it's very difficult to prevent in the first place,” Dr. Gilotra notes. “And, because it's slow-growing, it's hard to diagnose without taking a tissue sample. A *P. acnes* infection may not show up for six months to a year without any noticeable symptoms except pain.”

In prepping a patient's skin prior to surgery, surgical teams typically use antiseptics like Chlorhexidine to prevent infection. However, *P. acnes* remains particularly resistant to such treatments by hiding in human follicles or deep in the skin's pores.

Through a conversation with SOM dermatologists, Dr. Gilotra learned that they used benzoyl peroxide to eliminate *P. acnes*, which led him to create a translational randomized clinical trial involving 120 patients. “Quite simply, we are looking at effectiveness of benzoyl peroxide versus Chlorhexidine with randomized patients undergoing shoulder surgery, to see which one is more effective in removing *P. acnes* from the skin,” he says. “We're also learning a lot about what patient populations are likely to carry the *P. acnes* bug.”

With these and other studies, Dr. Gilotra clearly relishes his dual role as a surgeon-scientist. “Thanks to our department, I can investigate a problem in the lab that is clearly relevant to the clinical work I do,” he says. “It's a unique position I have here. It keeps my job interesting, and I never get bored.”



The culprit: *P. acnes* bacteria

2017 ORTHOPAEDIC FACULTY, STAFF, RESIDENTS & FELLOWS

FACULTY BY SPECIALTY

TOTAL JOINT RECONSTRUCTION

Farshad Adib, MD
Theodore T. Manson, MD
Vincent Y. Ng, MD

SPINE CARE

Kelley E. Banagan, MD
Daniel E. Gelb, MD
Eugene Y. Koh, MD, Ph.D.
Steven C. Ludwig, MD

HAND

Joshua M. Abzug, MD
Ngozi M. Akabudike, MD
W. Andrew Eglseeder, MD
Ebrahim Paryavi, MD
Raymond A. Pensy, MD

SHOULDER AND ELBOW

S. Ashfaq Hasan, MD
Mohit Gilotra, MD
M. Gerard Slobogean, MD

SPORTS MEDICINE

Farshad Adib, MD
Craig H. Bennett, MD
Brian N. Corwell, MD
Claudia Dal Molin, D.O.
R. Frank Henn, III, MD
Meagan Lewis, MD
Jonathan D. Packer, MD

LOWER EXTREMITY AND FOOT/ANKLE

Hummira H. Abawi, DPM
Jeffrey Brodie, MD
Emily J. Durrance DPM, CWS
Jacob Wynes, DPM, MS, AACFAS



MUSCULOSKELETAL ONCOLOGY

Daniel M. Lerman, MD
Vincent Y. Ng, MD

ORTHOPAEDIC TRAUMA

Jean-Claude D'Alleyrand, MD
W. Andrew Eglseeder, MD
Christopher T. LeBrun, MD
Theodore T. Manson, MD
Jason W. Nascone, MD
Robert V. O'Toole, MD
Ebrahim Paryavi, MD
Raymond A. Pensy, MD
Andrew N. Pollak, MD
Marcus F. Sciadini, MD
M. Gerard Slobogean, MD
Jide M. Tinubu, MD

PEDIATRIC ORTHOPAEDICS

Joshua M. Abzug, MD

PHYSICAL THERAPY

Peter D. Bowman, PT,
DPT, FAAOMPT

ADDITIONAL CLINICIANS

Mark Bradford, PA-C
Stephen Breazeale, CRNP
Pam Brown, CRNP
Meredith Capron, CRNP
Emily Chell, CRNP
Lauren Condon, PA-C
Robyn Cothorn, RN
Alyssa Davis, CRNP
Julia Dunning, CRNP
Pat Gardner, RN
Joanna Kim, CRN
Kimberly Krudener, CRNP
Joseph Larivey, CRNP
Jenna Levy, PA-C
Erin Lock, CRNP
Lea Marineau, CRNP
Joann Mittelman, CRNP
Helga Scharf-Bell, CRNP
Mike Smuda, ATC
Evin Taskoy, ATC
Sam Thompson, ATC
Breighanna Wallizer, CRNP
Pam Wilson, RN
Julie Yetso, PA-C

RESIDENTS

PGY-1
Timothy Costales, MD
Andrew Dubina, MD
Michael Foster, MD
Alexander Hahn, MD
Annie Weber, MD

PGY-2
Louis Bivona, MD
Patrick Greenwell, MD
Alexander Kish, MD
William (Trey) Shield, MD
Xuyang (Jack) Song, MD

PGY-3
Shivam Desai, MD
Elizabeth Glazier, MD
Arun Hariharan, MD
Steven Horton, MD
Jarid Tareen, MD

PGY-4

Eve Hoffman, MD
James (Paul) Hovis, MD
Sean Meredith, MD
Neil Sardesai, MD
Mark Shasti, MD

PGY-5

Kenneth Chin, MD
Matthew Christian, MD
Aaron Johnson, MD
Jonathan Klaucke, MD
Thao Nguyen, MD

FELLOWS

SPINE FELLOWS
Nissim Ackshota, MD
Amit Bhandutia, MD
Stephen Clark, MD

TRAUMA FELLOWS
Suneel Bhat, MD
Mark Gage, MD
Michael Maceroli, MD
G. David Potter, MD
Brent Wise, MD



CONNECTING THROUGH GIVING

Private philanthropy advances the mission of the Department of Orthopaedics to provide the highest quality of patient care; conduct innovative clinical, basic science and translational research; acquire the latest technology and equipment, and train the next generation of global leaders in orthopaedic surgery. Every gift makes an impact.



Dr. Jason M. Scopp, Orthopaedic Surgeon, Sports Medicine, and Joint Preservation, Peninsula Orthopaedic Associates

“I’VE GOTTEN MY LIFE BACK”

He's a physician who literally practices what he preaches. Jason Scopp, MD is currently an orthopaedic surgeon in sports medicine at Peninsula Orthopaedic Associates. At the same time, he's also an active and dedicated sports enthusiast who pursues such demanding

outdoor activities as surfing, skiing, and mountain-climbing.

After completing his residency program at the Department of Orthopaedics at the University of Maryland School of Medicine, and a subsequent fellowship in California, Dr. Scopp has been in practice for the past 15 years on Maryland's Eastern Shore. But recently, athletically induced back

issues caused him to return to the University of Maryland Medical Center, this time as a patient seeking treatment from the Spine Center and the faculty of the Department of Orthopaedics. “As an orthopaedic surgeon myself, I was immediately impressed by the Center’s underlying organization—it is a tightly run ship,” he says. “From my first consultation with Dr. Ludwig to my post-operative care, I felt I was in good hands throughout every step of my treatment process. Now I've returned to doing everything I did before—not just in my professional duties as a surgeon, but in my free-time pursuits of surfing, skiing, and mountain-climbing. I've gotten my life back.”

“GIVING BACK TO THOSE WHO NEED IT MOST”

Although he has built a highly successful business in automotive sales over the years, George Doetsch has remained driven by another, equally important commitment. “When you make money from the communities surrounding your business, you want to give a lot of that money back to the people there who need it most,” he affirms. “That's what I've done my entire life. My cause primarily has been medical, because the medical community is near and dear to me.”

“From my first consultation with Dr. Ludwig to my post-operative care, I felt I was in good hands throughout every step of my treatment process. Now I’ve returned to doing everything I did before. I’ve gotten my life back.” — Jason Scopp, MD



George Louis Doetsch, Jr.
Chairman, Apple Ford Lincoln

And with good reason—Mr. Doetsch firmly believes he is alive today due to the intervention of Clifford H. Turen, MD. In 2005, Mr. Doetsch suffered a serious horseback riding accident and was flown to the University of Maryland’s R Adams Cowley Shock Trauma Center by air medivac. Ten days later, he again was raced by ambulance to Shock Trauma at 4 AM, this time suffering from a massive stroke. On both occasions, he was met by Dr. Turen, who at that time was Chief

of Orthopaedics at Shock Trauma. “When I arrived at Shock Trauma the second time, I was clinically dead,” he recalls. “Dr. Turen got me breathing again on the elevator up to the OR. I wouldn’t be here now if it wasn’t for him.”

By a twist of fate, both men already knew each other well. Mr. Doetsch had been asked to join the Board of Visitors for Shock Trauma in 1994, and had become acquainted with Dr. Turen over the subsequent years, which had led in turn to a close friendship.

FELLOWSHIP SUPPORT

In January 2013, the University of Maryland medical community was rocked by the news that Dr. Turen had died suddenly in an aviation accident. In response, the university immediately established the Clifford H. Turen, MD Fellowship Endowment Fund to honor his memory. The Fund provides essential fellowship support to Orthopaedic Trauma Fellows, allowing them to establish themselves as clinician-scientists in purchasing equipment and paying for research expenses or professional travel. In addition, the Fund also underwrites a highly-regarded lecture series

for the intellectual enrichment of the University and the scientific community at large.

While deeply pained by his friend’s passing, Mr. Doetsch did what he has done countless times before, and made a major foundational gift to the Turen Fellowship Endowment Fund. By doing so, he provided a huge boost to the Fund in accelerating its charitable activities. According to Mr. Doetsch, it was just the right thing to do. “Cliff Turen not only saved my life, but he was a very good friend as well,” he says. “I gave to his Fellowship Endowment Fund to compliment his skill and experience in the field of orthopaedics—and to be remembered for all that he did for others.”

To learn more about supporting the clinical and research efforts of the Department of Orthopaedics, please contact 410-706-6870.

ENSURING EXCELLENCE FOR OUR FUTURE



The best reputations are built upon a continuing commitment to the delivery of excellence. Here at the Department of Orthopaedics, we have worked tirelessly to earn and maintain that reputation across the broad spectrum of our endeavors—in clinical care, education, and research.

But to sustain that standard of excellence, we must look to the future—to pass along our shared experience, knowledge, and passion for the art and science of orthopaedics to a new generation. Our department's residents and fellows are our future. Through a singular dedication to their training and devotion to medicine, they are taking up the challenge to carry excellence in orthopaedics forward through the 21st century.

**(L to R) Robert S. Sterling, MD
(Guest Speaker); R. Frank Henn, III,
MD (Program Director); Matthew
W. Christian, MD (Chief Resident);
Thao Ngyuen, MD (Chief Resident);
Kenneth M. Chin, MD (Chief
Resident); Jonathan T. Klaucke, MD
(Chief Resident); Aaron J. Johnson,
MD (Chief Resident); Andrew N.
Pollak, MD (Department Chair)**





UNIVERSITY *of* MARYLAND
SCHOOL OF MEDICINE

**The University of Maryland
Department of Orthopaedics**
**110 South Paca Street
Sixth Floor, Suite 300
Baltimore MD 21201
(410) 328-6040
www.medschool.umaryland.edu/ortho/**