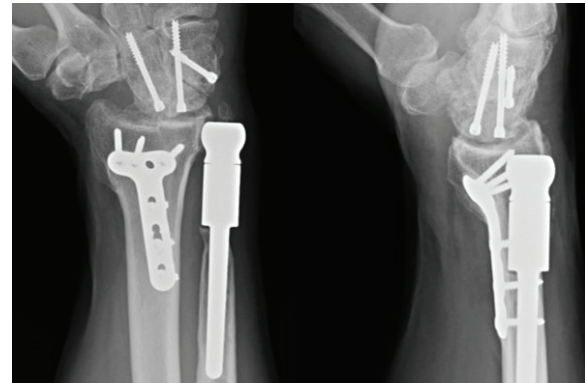


# INNOVATIONS IN ORTHOPEDICS



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# A Message from the Chairman



*Randall E Marcus MD*

**RANDALL E. MARCUS, MD**

*Charles H. Herndon Professor and Chairman,  
Department of Orthopedics,  
UH Cleveland Medical Center  
Case Western Reserve University  
School of Medicine*

In this issue of Innovations in Orthopedics, we are delighted to share news of our move toward a University Hospitals Orthopedic Institute and announce recent staff additions. We're also highlighting our high-reliability medicine/total joint replacement initiative, hip arthroscopy expertise and a severe wrist fracture case study.

UH has evolved from a single hospital to a true health system, with 18 hospitals and 40 additional locations throughout Northeast Ohio. As an integral part of this system, we are forming the UH Orthopedic Institute, with more than 100 orthopedic surgeons and hundreds of ancillary staff. Practices once competing against each other are now working in a collaborative network, consulting one another on patients with complex problems.

Our patients are benefiting from our coordination and the increased access they have to convenient locations across the northeastern part of the state. We are bringing sports medicine, joint replacement and other orthopedic services to their neighborhoods. At the same time, we have orthopedic subspecialists who draw patients from our region and beyond and deliver excellent care for the most challenging cases.

As a unified institute, we are implementing best practices and high-reliability medicine (see story on page 4) for all orthopedic care. We are also working on efficiencies and cost savings on volume purchases of supplies shared throughout the system.

Our recruitment of new physicians has never been stronger, and we continue to add top-level doctors to our multifaceted faculty.

As one of the nation's highest-rated medical centers for both adult and pediatric orthopedics, we're proud to unify our comprehensive resources into the UH Orthopedic Institute. As an institute, we are committed to markedly improving the quality of life of our patients.

We welcome your comments, questions and suggestions. Feel free to contact us via email, phone or our professional referral service. 📞

For more information from University Hospitals, visit **UHDoctor.org**. The UH online resource center features relevant content for physicians and other clinicians, covering clinical practice, patient care, research and education. Visit **UHDoctor.org** today.

# DEPARTMENT NEWS

## UH ORTHOPEDICS

### Welcomes New Physicians

**George Ochenjele, MD**, recently finished his orthopedic trauma surgery fellowship at the University of Maryland. Originally from Nigeria, he completed his medical degree and orthopedic residency at Northwestern University.

**Bev Guo, MD**, is a hand surgeon who formerly practiced in Westchester, N.Y. She completed a hand surgery fellowship at the University of Utah, completed her residency at the New York University Hospital for Joint Diseases and earned her medical degree from Case Western Reserve University School of Medicine.

**Robert Flannery, MD**, specializes in medical sports medicine and provides nonoperative sports medicine for athletes, including the Cleveland Browns. He completed a fellowship in sports medicine at the Robert Wood Johnson University Hospital and family medicine and general surgery residencies at Latrobe Area Hospital in Pennsylvania and Union Memorial Hospital in Baltimore.

**Justin Mistovich, MD**, is a pediatric orthopedic surgeon who completed his fellowship at Children's Hospital of Philadelphia. He did residency training at Allegheny General Hospital in Pennsylvania and earned his medical degree from Wright State University.

"We're thrilled to have these four outstanding young surgeons and physicians," says Randall Marcus, MD, Charles H. Herndon Professor and Chairman of the Orthopedics Department, UH Cleveland Medical Center. "They bring tremendous expertise and new techniques and treatments to our department."

### UH Launches Sports Medicine Institute

Our new Sports Medicine Institute brings sports medicine services to the health system's 18 hospitals and 40 additional locations. Athletes of all ages and abilities across Northeast Ohio now can access medical, surgical, imaging and rehabilitation services in their own communities.

### Innovative Surgery Propels Fracture Care in Developing Countries

A study that demonstrates the safety of retrograde femoral nailing for distal femur fractures in children was recently completed by Derrick Knapik, MD, a UH orthopedic resident, under the mentorship of UH pediatric orthopedic surgeon Raymond Liu, MD. The new surgical technique will provide millions of children living in poverty worldwide a chance to heal without prolonged, painful recoveries and permanent disability.

Drs. Knapik and Liu recently presented a talk on this revolutionary work at the SIGN Fracture Care International Annual Meeting. They also taught surgeons at the conference how to perform the surgery. SIGN is a nonprofit humanitarian company that trains surgeons and provides free orthopedic implants in resource-poor countries.

### UH Orthopedists Receive \$400,000 Grant for Osteosarcoma Research

UH orthopedic scientist Edward Greenfield, PhD, and surgeon Patrick Getty, MD, received a \$400,000 grant from the National Cancer Institute to further their work with novel therapeutics for osteosarcoma. They are focusing on "smart chemotherapies" as they examine the DNA of a tumor and select which chemotherapy agent is likely to work best against that tumor. This innovative strategy builds upon the groundbreaking studies of UH orthopedic residents William Morris, MD, and Christopher Collier, MD. The research looks promising and is moving toward human trials.



### Director of Pediatric Orthopedics Awarded Endowed Chair

President Patricia DePompei of UH Rainbow Babies & Children's Hospital presented George Thompson, MD, with the endowed Rainbow Chair in Pediatric Orthopedics. Dr. Thompson, who is Director of Pediatric Orthopedics at UH, has been with UH Rainbow Babies & Children's Hospital for almost 40 years and has gained an international reputation for his many contributions to the care of children with musculoskeletal problems. 🇺🇸

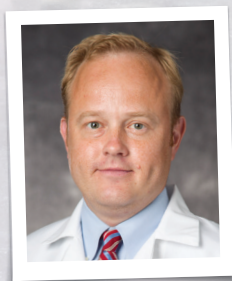
# HIGH-RELIABILITY MEDICINE

## Promotes Value for Total Joint Replacement Patients



**MATTHEW KRAAY, MD, MS**

*Chief, Adult Reconstruction,  
UH Cleveland Medical Center  
Kingsbury G. Heiple and Fred A. Lennon  
Chair in Orthopaedics,  
Case Western Reserve University  
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**STEVEN FITZGERALD, MD**

*Orthopedic Surgery,  
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“Everyone’s expectation for total joint replacement surgery needs to be two days or less in the hospital and discharge directly to home.”

These words from Matthew Kraay, MD, MS, Chief, Adult Reconstruction at University Hospitals Cleveland Medical Center and Kingsbury G. Heiple and Fred A. Lennon Chair in Orthopaedics at Case Western Reserve University School of Medicine, would have been thought unlikely or even unsafe a few years ago. Yet, as physician lead for the high-reliability medicine (HRM) initiative for total joint replacement (TJR) at UH, Dr. Kraay has witnessed orthopedic teams across the UH system safely produce just that result.

UH orthopedic surgeon Steven Fitzgerald, MD, confirms, “We’ve reduced our hospital stays down to one or two days and significantly decreased the number of people who need to go to a skilled nursing facility after their care. We want people to go home after their surgery. They do better and the risk of infection is lower.”

Dr. Kraay describes the systemwide process as consensus-driven, evidence-based, high-quality and high-value. “It has truly transformed how we provide care for our joint replacement patients across our health care system,” he states.

Key principles of the initiative are to improve patient safety, quality, outcomes, patient satisfaction and value while reducing variance in care, waste, inefficiency, complications and readmissions.

“Patients and insurers are increasingly looking for value in health care, and our redesign initiative unquestionably promotes value. This is essential as we transition to value-based alternative payment models mandated by the Affordable Care Act,” Dr. Kraay adds.

## Staff Buy-In

During a 16-week transformation that began in fall 2015, surgeons, nurses, physical therapists, infectious disease specialists and key operational leaders from 16 UH hospitals analyzed, evaluated and revamped their patient care processes from pre-op through post-op recovery.

The redesign focused on standardizing care to minimize variance, incorporating evidence-based concepts and best practices, and eliminating waste and non-value-added care at each UH facility that performs TJR. Key goals included:

- Manage surgical costs
- Reduce hospital length of stay
- Decrease costly readmissions
- Increase discharge to home versus sending patients to skilled nursing facilities (SNFs) post-surgery

Initiative “champions” at each hospital implemented an educational process and distributed a manual detailing policies and protocols. The elements of the new process were fully put in place in spring 2016.

“With improvements in pain management, accelerated rehab protocols, and the higher level of care that we can provide patients in their homes after hospital discharge, essentially all of our hip and knee replacement patients can go directly home after a short, two-day hospital stay,” Dr. Kraay says.

“Numerous recent peer-reviewed studies suggest that rehab hospital or SNF stays after joint replacement surgery add limited value to the patients’ care and recovery and are almost never necessary,” he adds.

## Practical Applications

“The success of our HRM TJR initiative and all of our future successes in an increasingly value-oriented health care environment are dependent on resetting the expectations for our patients, institutions and all providers, and changing the culture of the past,” Dr. Kraay says. “We can’t look at what people did 10 years ago.”

Some notable changes thus far have included:

- Preoperative patient assessment, which has traditionally focused on “medical clearance,” now focuses on addressing modifiable surgical risk factors such as obesity, diabetic control (A1C), smoking and substance abuse before surgery. All of these are associated with complications and adverse surgical outcomes.
- The patient’s surgeon is promptly notified about any change in a TJR patient’s status that may put that person at risk of being readmitted. The physician can then provide efficient and appropriate management of medical issues.
- A comprehensive live or Web-based preoperative patient and family education program covering surgery, rehabilitation and recovery is required. Participation is essential in preparing the patient to be released after a two-day hospital stay.
- A care navigator guides patients through preoperative education, preadmission testing, surgery and recovery to ensure that a patient completes all necessary steps.
- Effective postoperative pain management and early rehabilitation get patients out of the hospital and back to their lives more quickly.

Dr. Fitzgerald explains UH’s pain management protocol: “It starts with anesthetic blocks in the OR at the time

of surgery. Postoperatively, the biggest thing we do is limit narcotic use. We use a combination of pain medications and anti-inflammatory medications. Reducing narcotics decreases nausea postoperatively and allows us to get people moving faster and out of the hospital earlier.”

Reducing variations in care, improving continuity of care and improving outcomes all have come about through implementation of evidence-based medicine and best practices.

Dr. Kraay points out reduced errors and complications and increased patient satisfaction through improved health education and communication.

As Dr. Fitzgerald notes, “It’s all about making patients’ lives better. It’s nice to come out of the OR and round at the end of the day and see your patients walking in the hallway with very little pain. It’s very encouraging.”

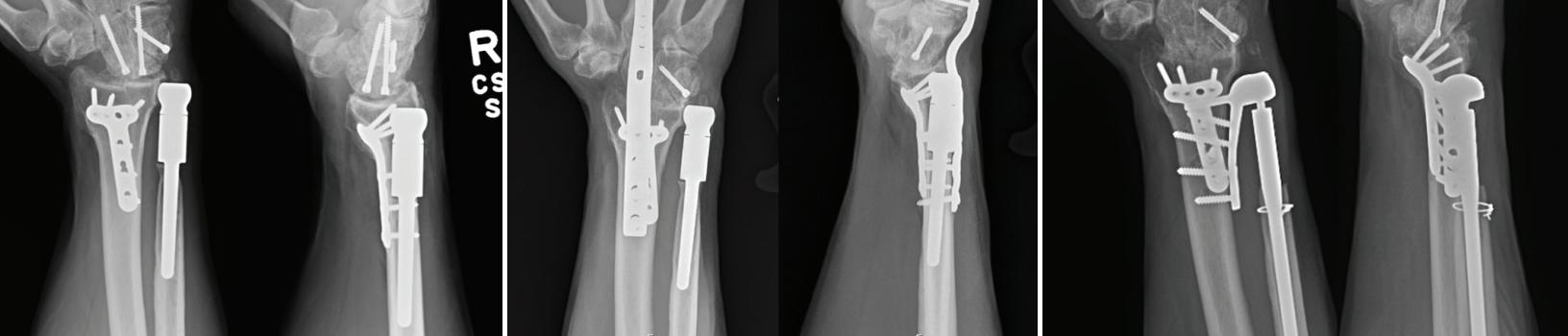
## Promising Results

“There’s a saying that what doesn’t get measured doesn’t get managed,” Dr. Kraay says. “A key aspect of making high-reliability medicine successful is looking at our data and monitoring our outcomes. We have key performance indicators, and we watch trends and look at where we’re getting better.”

Early results include:

- Length of stay for joint replacement patients decreased by 0.6 days over six months, saving 2,500 hospital days at \$500/day.
- The most recent monthly data shows 92 percent of knee replacement patients and 96 percent of hip replacement patients went home versus going to a skilled nursing environment, an improvement of 30 percent over last year.

For more information on this initiative, call **216-844-8372**. 



## CASE STUDY

# Constrained Arthroplasty of Distal Radioulnar Joint After Severe Fracture

In 2012, a 57-year-old man working at a job site fell from an elevated height and landed on his right arm. His arm buckled, cleanly breaking the ends of his radius and ulna at the wrist joint.

Hand and upper extremity surgeon Kevin Malone, MD, evaluated him and, after careful consideration, used a plate to fix the broken radius and took a conservative course in letting the ulnar styloid fracture heal on its own.

As the man recovered and received therapy, a late-presenting distal radioulnar joint (DRUJ) subluxation caused him pain and made it difficult for him to rotate his forearm. Dr. Malone performed two additional surgeries to stabilize the DRUJ and the damaged soft tissue structures supporting it.

Post-traumatic arthritis developed following these surgeries, causing additional pain in the DRUJ and a clicking noise as the man rotated his forearm or exerted any force on his wrist. Dr. Malone then performed additional surgeries for pain relief and improved function, including an intercarpal fusion and ulnar head arthroplasty.

In fall 2015, Dr. Malone did a total wrist fusion due to continued pain and progressive post-traumatic arthritis of the man's wrist joint. Following the surgery, the man was not able to move his wrist up and down or side to side, but he could rotate his forearm through the radioulnar joint. The procedure relieved some of the patient's pain, but he still had sharp discomfort with twisting maneuvers.

"Shaking hands was painful for him. He couldn't do anything more forceful than pick up a cup of coffee," Dr. Malone says.

### THE RIGHT FIT: Constrained Arthroplasty of the Distal Radioulnar Joint

Dr. Malone, who by then was Chief of University Hospitals' Division of Hand and Upper Extremity Surgery, continued to investigate options for his patient. He believed a new metal and polyethylene implant with a constrained arthroplasty procedure of the DRUJ could provide his patient with additional comfort and mobility.

Dr. Malone says, "I would consider this surgery for someone with significant pain and/or instability of the DRUJ who has exhausted other options and can comply with permanent activity and lifting restrictions."

His patient was eager to try this newest option.

During the surgery, Dr. Malone removed the previously placed ulnar head implant as well as the wrist fusion plate. With the new, three-component implant device,

he first used screws to attach a plate to the radius along the ulnar aspect. He placed a second component within the medullary canal of the ulna. He then connected the two with a third portion, which restored kinematics of the radial ulnar joint.

The patient now has full rotation of his forearm, full range of motion in his hand and significant resolution of his pain.

Dr. Malone notes, "He still has limitations in weight bearing and twisting to protect the implant. He can't go back to heavy labor, but he can fully rotate his forearm, make a fist and open his hand."

"This has been a large success," Dr. Malone continues. "We've met the expectations and hopes of both of us, given the challenging problem at the beginning."

For more information or to refer a patient to Dr. Malone, please call **216-844-9080**. 📞



### KEVIN MALONE, MD

Chief, Hand Surgery, UH Cleveland Medical Center  
Associate Professor of Orthopaedics,  
Case Western Reserve University  
School of Medicine

# UH Orthopedic Trauma Surgeon Fulfills Lifelong Dream

George Ochenjele, MD, has traveled halfway around the world to pursue his passion to practice medicine. He grew up in a small town in Nigeria with his parents and four siblings. They earned their living by farming, and although his parents had little formal education, they recognized its value.

At age 8, Ochenjele decided to become a doctor after witnessing his grandfather and others die from inadequate health care. He realized he would need schooling beyond what his small town could offer and persuaded his parents to let him attend a boarding school for gifted students five hours from home.

Accepted to multiple American colleges, Ochenjele earned an academic scholarship to Eastern Illinois University. An American family his father had met on a previous trip to the U.S. agreed to offer him housing.

"I was excited about the opportunity," he says. "I was of the mindset that I was in a new country and a new home. The best approach was to adapt to the culture as soon as possible."

In his second semester, his adopted family introduced him to Krista, an American student who would become his wife. She was studying to be a nurse and had training as a classical violinist.

## Climbing the Medical Ladder

Ochenjele applied to medical school and was accepted at Northwestern University. He initially considered cardiology or cardiovascular surgery as his specialty. In Nigeria, he hadn't had exposure to orthopedics.

During his medical school years, he recalls, "I wanted to explore what else was out there, and I asked one of the orthopedic surgeons if I could watch a knee replacement. I knew right away orthopedic surgery was the right fit for me."

Dr. Ochenjele stayed on at Northwestern for his orthopedic residency training and then pursued a fellowship in orthopedic trauma surgery at the University of Maryland Shock Trauma Center in Baltimore.

## Establishing a Niche at UH

Following his training, Dr. Ochenjele has established himself as an orthopedic trauma and reconstructive surgeon at UH. He rotates with two other trauma surgeons to manage injuries from motor vehicle accidents or falls from heights. He focuses his reconstructive practice on anterior hip replacement and hip reconstruction.

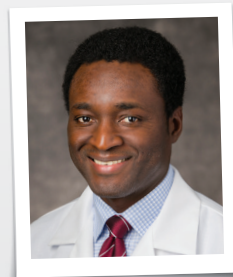
As the only orthopedic surgeon at UH performing anterior hip replacement, Dr. Ochenjele comments, "The beauty of this procedure is that I can use intraoperative fluoroscopy for very precise placement of the hip implant. Patients in general have a quicker recovery in the initial postoperative period, lower risk of hip dislocation and no hip precautions after surgery."

Dr. Ochenjele and his wife have five children, ages newborn to 8 1/2. He says his wife is his foundation. "She's made the process very easy for me and has been very supportive."

He has been back to Nigeria a couple of times and would like to eventually make medical mission trips to train surgeons in his homeland.

"What I love most about the U.S. is that if you work hard, it opens doors for you. That's not necessarily the case in Nigeria. Ultimately, my goal is to be able to give someone else the same opportunity given to me."

To refer a patient to Dr. Ochenjele, please call **216-844-7200**. 📞



**GEORGE OCHENJELE, MD**

*Orthopedic Trauma Surgery,  
UH Cleveland Medical Center*

*Assistant Professor,  
Department of Orthopaedics,  
Case Western Reserve University  
School of Medicine*

## When to Refer: Hip Arthroscopy

Minimally invasive hip arthroscopy for adolescents and adults with nonarthritic hips has been increasing in volume at University Hospitals since 2009.

Michael J. Salata, MD, Director of the Joint Preservation & Cartilage Restoration Center at University Hospitals Cleveland Medical Center and Associate Team Physician for the Cleveland Browns, has performed more than 1,500 hip arthroscopies.

Dr. Salata and his team welcome referrals on patients as young as age 12 and into their 60s for the following conditions:

- Hip dysplasia with labral tears (UH is a regional center for this procedure)
- Slipped capital femoral epiphysis (SCFE)
- Post-Perthes disease
- Proximal hamstring injuries
- Femoroacetabular impingement (FAI)
- Acetabular labral tears
- Removal of loose bodies
- Gluteus medius and gluteus minimus tears
- Chronic trochanteric bursitis
- Coxa saltans (snapping hip)
- Iliopsoas tendinitis
- Revision of failed surgeries

Dr. Salata also collaborates with Robert Wetzel, MD, an open hip preservation surgeon, to combine open periacetabular osteotomy to correct hip dysplasia with arthroscopy to address intra-articular pathologies, such as labral tears.

“Few people around the country can do this combined procedure,” Dr. Salata says. “By doing everything in a single setting, we minimize anesthesia and surgical pain and streamline recovery. We also hope to prolong the life of the native joint and minimize risk of progressive disease and possible hip replacement.”

Sports medicine primary care physicians at UH also provide nonsurgical treatment options, such as ultrasound-guided corticosteroid injections and platelet-rich plasma injections. In addition, the UH Orthopedics Department has a center for young adult and adolescent hip issues.

Dr. Salata’s depth and breadth of experience have resulted in improved function and a high rate of patient satisfaction as people return to high-level sports and everyday activities.

His membership in the International Society of Hip Arthroscopy, participation in multicenter trials and more than two dozen papers published on hip arthroscopy keep him at the center of the latest advances in techniques and technologies.

If you have questions or would like to make a referral, contact **216-983-PLAY (7529)** for sports medicine issues or Dr. Salata’s office at **216-844-6097**.



### MICHAEL J. SALATA, MD

*Director of the Joint Preservation & Cartilage Restoration Center, UH Cleveland Medical Center  
Associate Team Physician, The Cleveland Browns  
Assistant Professor, Department of Orthopaedics, Case Western Reserve University School of Medicine*



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