Letter from the Chair

This issue of Joint Venture covers a wide variety of topics, including work culture, philanthropy, education, and research.

Denis R. Clohisy, MD

We’re featuring a groundbreaking ankle fracture study led by Fernando Peña that is getting a lot of attention. The study was showcased during the 2016 annual meeting of the American Academy of Orthopaedic Surgeons. We believe it will have an impact on orthopaedic practices throughout the nation by reducing cost and improving both patient satisfaction and returns to work.

With the encouragement of Dean Brooks Jackson, and the leadership of Joan Bechtold, our Vice Chair for Research, we are investing more than ever in our research mission. To help us with that investment, the University of Minnesota Foundation has designated our department as a philanthropic focus area. This increased attention underscores the essential role of philanthropy in our educational mission and helps us better position our research to more rapidly change patients’ lives.

Speaking of changing patients’ lives, in computing the number of patients affected by our residents and graduates since I became department head (9 years ago), we determined that our educational programs have helped an estimated 200,000 patients throughout the world.

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Increasing the department’s focus on research

Research has long been a vital part of the learning and patient care improvement process for Department of Orthopaedic Surgery (DOS) faculty and students. The department recently gave it even more focus by bringing on Joan E. Bechtold, PhD, as Professor and Vice Chair of Research. She splits her time between Hennepin County Medical Center (HCMC) in Minneapolis and the University of Minnesota campuses.

She’s not new to the department. “I’ve been working on research at HCMC since 1984 and had quite a bit of interaction with the U’s Department of Orthopaedic Surgery during that time,” she noted. Bechtold graduated from Michigan State University in Mechanical Engineering and came to the U of M to do graduate work in orthopaedics after two years at Mayo in Orthopaedic Biomechanics. “I started working at HCMC during my doctoral program and have been there ever since,” she said.

When describing the robust research environment being fostered in the U’s Department of Orthopaedic Surgery, Bechtold said that collaboration is key. A few current partnerships include:

- Partnership studying orthopaedic patient-reported outcomes with HealthPartners and Park Nicollet health systems
- Partnering with the School of Veterinary Medicine on treatments for a painful cartilage condition sometimes found in adolescents – and both horses and pigs
- Collaborating with the renowned Center for Magnetic Resonance Research on campus to use imaging to help diagnose conditions earlier, when they’re easier to treat and potentially prevent
- Swapping infection reduction research (and researchers) with a group of scientists in Denmark
- Working with the U’s Stem Cell Institute, using stem cells to help tissue such as skin and bone heal more effectively, especially after diabetic amputations.

Other research is being done to help treat tumors, evaluate and track resident surgical skill acquisition, develop knee implants, and reduce opioid use.

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“We’re evaluating how this will work in tandem with the residents’ clinical practice.” - Dr. Bechtold
Letter from the Chair, continued

That is a big contribution, a major responsibility and a tremendous source of pride. Our educators are constantly making improvements in understanding how residents learn. A few of those innovations are highlighted in this newsletter.

We are striving to strengthen our work culture. Our goal is to be a place where everyone — whether delivering the mail, wheeling a patient to the OR, transcribing clinical dictation, providing instruments during surgery, or caring directly for our patients — loves to come to work and has opportunities for career development.

All these topics hint at the impact that the members of our department have had on research, philanthropy, education, and work culture optimization. I’m sure you will be as excited as I am about our work after you’ve had a chance to read the newsletter.

Denis R. Clohisy, MD
Professor and Chair
Roby C. Thompson Endowed Chair in Musculoskeletal Oncology
Department of Orthopaedic Surgery

Ground-breaking study set to change how ankle fractures are treated post-operatively

How do you improve patient outcomes? Fernando Peña, MD, believes it’s simple – just listen to them. That’s exactly what led him to the results of a groundbreaking study involving patients who had undergone open reduction and internal fixation (ORIF) surgery for ankle fractures. Following this surgery, the standard therapeutic response would be to have patients bear no weight on the fracture for at least six weeks. And that means crutches.

“When my ankle fracture patients would come back to the clinic for their six-week checkup, we’d get an x-ray and everything would look fine,” said Peña. “I’d tell them they could go ahead and start walking on that ankle. They’d jump off the bench, put a plastic boot on, and walk out of the room. There was no way that could happen after being on crutches for six weeks.”

His patients’ results piqued Peña’s curiosity. It was obvious that they were putting weight on the repaired fracture much sooner than was indicated. “So I asked them if they’d been walking, when they started, how they did it, and if they had any pain,” he said. “My patients’ positive outcomes happened enough times that I thought maybe it’s okay to walk sooner.”

Then Peña attended a session by physicians from the United Kingdom during a professional meeting. “While they didn’t have large numbers, their work showed me it was possible to change how we were handling our ankle fracture patients,” he noted. But he didn’t want to do anything without compelling data. With the blessing of experienced orthopaedic clinical researchers, Peña launched his study.

The study compared 216 ankle fracture patients who bore weight on the repaired ankle within an average of 2.6 weeks following surgery to 219 patients who followed the more traditional treatment protocol of no weight bearing for six weeks. “The first three months were very stressful because I didn’t know how many ankle fractures would fall apart,” he said. “But the truth is that not a single one fell apart.”

“My patients’ positive outcomes happened enough times that I thought maybe it’s okay to walk sooner.” - Dr. Peña
That’s pretty revolutionary. The study’s results show exactly what Peña was seeing in his patients. “They were right,” he said. “Thankfully, we were inquisitive enough to pay attention and apply it.”

Data collection for the study wrapped up in mid-December; the results have been submitted to the Journal of Bone and Joint Surgery. The study was already showcased during the American Academy of Orthopaedic Surgery annual meeting earlier in 2016. “The results were so clear cut, there were no questions on interpretation,” Peña said, smiling.

Who might be a good candidate for this new approach? Anyone with an ankle fracture who goes through the ORIF surgery and can feel pain. “If you can’t feel pain because of neuropathy or profound diabetes, we can’t protect your ankle to the degree necessary,” said Peña.

Patients undergoing the new postoperative protocol can bear weight on their repaired ankle within approximately two weeks of the surgery. Pena tells practitioners, “Don’t be afraid to use the new protocol. Patients will appreciate the reduced costs, increased mobility and accelerated return to work.”

Focus on Research, continued

The department is also undergoing a renaissance in the way its residents are taught how to do research. “Under Dr. Ann Van Heest’s leadership, residents attend seminars on research basics, statistics, and literature review,” said Bechtold. The department recently started a roundtable during which researchers come vet their ideas with faculty and residents. It gives them another layer of evaluation and exposes residents to new concepts.

“In addition, Dr. Van Heest is starting to protect time for residents to perform research throughout their five-year program,” Bechtold noted. “We’re evaluating how this will work in tandem with the residents’ clinical responsibilities.” The department recently submitted a journal article that includes different perspectives about the importance of resident research.

It’s not just residents that benefit from this increased focus on research. Department leadership is providing opportunities for seed grants, encouraging young clinicians to apply for NIH funding, and providing focused time for writing papers and submitting grants. Bechtold believes it’s yet another way the Department of Orthopaedic Surgery differentiates itself and solidifies its international reputation of academic excellence.

In vitro culture
osteoclasts stained for tartrate resistant phosphatase (TRAP).
The Department of Orthopaedic Surgery’s education program is one of the largest in the region and includes six hospital locations in the Twin Cities. The residency program educates eight residents a year, as well as offering Medical School clerkships and several specialty fellowships. “We are a top 10 residency training program,” notes Vice Chair of Education Ann Van Heest, MD. The department also provides Continuing Medical Education to members of the practicing community via the Friday Grand Rounds program being run by Patrick Horst, MD.

In addition to the complexity of running such a large program, the department’s Education team recently identified some trends that affect how they continuously improve education.

**TREND: greater focus on competency-based education**

This trend focuses on ensuring that “we graduate competent, capable surgeons,” according to Education Manager Erik Solberg. “At the end of their residency, our students need to be skilled in performing specific surgeries. We want to make sure we have checklists and assessments in place to tell us that each graduate is ready.”

Associate Program Director for the Residency Program Alicia Harrison, MD, noted that one tactic is to provide access to Ortho Bullets, an online educational tool that enables residents to gain additional information in several different specialty areas, such as shoulder, hips, trauma, pediatrics, etc. “Ortho Bullets tracks their results, provides objective information, and is widely available to the residents,” she said. There is also a question bank that enables residents to take standard evaluations or create customized exams to test their knowledge.

**TREND: more time spent in simulations**

Surgical simulation training is a big part of making orthopaedic residents competent and capable. They are, in fact, now a requirement. But the U’s Department of Orthopaedic Surgery has gone a step further. Resources include a simulator that teaches residents basic surgical skills, learning fracture fixation using synthetic bone, and practicing on human cadavers for procedures such as trigger finger and carpal tunnel surgery.

Van Heest noted that faculty member Jon Braman, MD, developed a specialized, portable simulator that helps residents learn how to do arthroscopic procedures. “It’s basically a box connected to a computer,” she said. “The student learns arthroscopic skills by manipulating arthroscopic tools and by looking at the screen. They are required to move items around…touch certain areas inside the box. It improves their manual dexterity and gets them used to watching a screen away from the surgical site while their hands move in space.”

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**Congratulations!**

**Awards and Achievements**

**Bradley Nelson, MD:** President-Elect of NHL Team Physician Society; Covered the World Cup of Hockey Pre-Tournament in Helsinki, Finland, September 2016.

**Jonathan Braman, MD:** Chosen as a 2017 American-British-Canadian Traveling Fellow by The American Orthopaedic Association.

**James Gage, MD (1971 Orthopaedic Surgery Graduate):** Received the Lifetime Achievement Award from the American Academy of Cerebral Palsy in September 2016. This award is presented to a special presidential guest lecturer, specifically selected by the First Vice President. The recipient of this award, during their lifetime, has made creative contributions of outstanding significance to the field of medicine and for the benefit of patients with cerebral palsy and other childhood-onset disabilities.

**James Kirkham, MD:** Became an American College of Radiology Fellow. The ACR Fellowship is awarded to members who are in good standing with the College and have evidenced significant accomplishments in scientific or clinical research in the field of radiology or significant contributions to its literature and/or performance of outstanding service as teachers of radiology. Dr. Kirkham is one of our musculoskeletal radiologists.

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But simulations alone do not make for capable, competent orthopaedic practitioners. “Robots don’t teach surgery, people do,” said Van Heest. “Our 50 active faculty members are willing to devote the time and energy needed to teach and explain to young people how orthopedic surgery works. They’re dedicated, passionate, excellent educators.”

TREND: improving the way students get feedback

The American Board of Orthopaedic Surgery (ABOS) has rolled out a new way to provide feedback to students and the U of M is one of 16 schools across the country testing it. “It’s a phone application that faculty use to evaluate students right after they’ve assisted with a surgery,” said Van Heest, who serves on the ABOS Board. “A resident with the app would request an evaluation from me and I would fill it out and send it to them. It gives them real-time feedback regarding the surgery.”

Orthopaedic Clerkship Director David Jewison, MD, also uses technology to provide feedback. “Whenever a Medical School student finishes a rotation, they have a five to ten-minute Skype call with me,” he explained. “It helps me gather some data about their experience, connects students with the department, and facilitates continuous improvement in student education.”

TREND: Paying more attention to resident wellbeing

“There is more emphasis on resident wellness in our curriculum,” noted Solberg. “We constantly ask ourselves, how might a specific change affect resident health… you can’t learn anything if you’ve been on call for a couple of days and can’t pay attention.” He added that this additional emphasis applies to attending physicians and ancillary staff as well.

TREND: Ensuring that students understand how to do research

In addition to a new emphasis on teaching residents how to do research, Van Heest sets aside dedicated time for them to focus on their research efforts. The department also recently recruited Deborah Bohn, MD, as the new resident research director, who works with Vice Chair of Research Joan Bechtold, PhD, to oversee research activities.

“These will be the people taking care of our patients in the future so we want them well trained, proud of their education, and for the university to be a strong center for education,” summarized Harrison about the work that the Education team is doing. “There is still room to innovate,” added Solberg. “If we want to develop something new, we have the resources and the ability to put it into action.”

Awards and Achievements, continued

Steven Koop, MD (1984 Orthopaedic Surgery Graduate): Received the Distinguished Alumni Award that recognizes University of Minnesota Medical School graduates who have made outstanding contributions to their communities – at the local, regional, or national level – through medical practice, teaching, research, or other humanitarian activities.

Lauren McCormick, MD, 3rd year Resident: Received the Ruth Jackson Orthopaedic Society 2017 Jacquelin Perry, MD, Resident Research Award for her abstract titled “A Biomechanical Study Comparing Minimally Invasive Anterior Pelvic Ring Fixation Techniques to External Fixation”

Channing Bancroft, Veterinary* Scholars Student: Received the Toxicological Pathology Student Poster Award from the Society of Toxicological Pathology for a poster titled: “Effects of 17-α-estradiol treatment on stifle joint osteoarthritis in aging mice” Channing A. Bancroft, Richard F. Loeser, Richard A. Miller, and Cathy S. Carlson

*TJ Ridley, MD & Christina Ward, MD: Won Resident Best Paper at the 2017 Annual American Association for Hand Surgery Meeting for abstract: “Infection Rates of Buried vs. Exposed Kirschner Wires in Phalangeal, Metacarpal, and Distal Radius Fractures” TJ Ridley, Will Freking, Lauren Erickson, Christina Ward
Becoming the best place to work

As Fernando Peña, MD, sees it, “Having a great culture around caring for our patients is essential to delivering the best patient care. One of our goals is to provide tools to all of our employees and team members now to begin accomplishing that.”

“Academic medicine has become a continuous change management industry,” added Department Chair Denis R. Clohisy, MD. “We strive to provide our team with the tools that enable us to manage change better – to manage change in a way that supports exceeding expectations about achieving each of our missions.”

Under Peña’s leadership and Clohisy’s enthusiastic – and visible – support, the department has begun its work culture optimization journey. One of the tools they are using is FISH!, a program developed by Minnesota-based Charthouse Learning. Based on the culture of Seattle’s “World Famous Pike Place Fish Market,” the program teaches participants to:

- Be there (be present, pay attention)
- Play (be creative, enthusiastic, have fun)
- Make their day (delight people, contribute positively to their day)
- Choose your attitude (take responsibility for your responses to whatever the world throws your way).

Peña believes the program, which is being offered to all involved in the department’s work, helps everyone understand and work better in what he describes as the new reality. “Effective academic surgeons today are concentrating more and more on the importance of taking a team approach,” he noted. “We’re all equally important when we provide care for our patients. Every team member provides value and is essential.”

In addition to FISH!, the teams have been trained in having what’s known as “crucial conversations.” These are conversations where the stakes are high, either personally, professionally, or economically. And the stakes don’t come any higher than in the medical field.

It’s likely that you’ve heard stories about poor communication in a medical setting. Patients, families, and care teams can be negatively affected when that happens. Mastering the art of crucial conversation gives team members the skills they need to communicate effectively.

“Communication in a supportive work culture improves patient safety and outcomes.” ~ Dr. Peña

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“The challenge is to reach into people’s hearts with a compelling story that will make them believe this is the way to go.” ~ Dr. Peña

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“Communication in a supportive work culture improves patient safety and outcomes.” ~ Dr. Peña

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“The challenge is to reach into people’s hearts with a compelling story that motivates them to focus on optimizing our culture and embracing each of our missions,” he added. “It’s tough when both stress and stakes are high. That’s when it’s important to have an organization with a positive, supportive and forward-thinking work culture.”

But things don’t change overnight. “Culture change for any organization takes years,” Peña noted. “It’s an ongoing process during which we need to constantly remind ourselves about the importance, impact, value and potential of high-functioning teams.”
Increased focus on philanthropy shines a Spotlight on Orthopaedics

Securing funding to sustain research and education has always been a high priority for the Department of Orthopaedic Surgery. Recently, however, new efforts for increasing philanthropy from grateful patients have been given a boost by the University of Minnesota Foundation.

“When university leadership wanted to target focus areas for our current fundraising campaign, they identified orthopaedics as a priority,” explained Jean Gorell, the Foundation’s Chief Development Officer – Medicine and Health. “They cited the department’s superior research, describing it as national, cutting-edge work, and the reality of current U.S. demographics that is resulting in a growing need for orthopaedic care among our aging population.” Development Officer Kathy Wegner was hired by the Foundation to help with these increased efforts.

From a fundraising perspective, Gorell noted that, “the areas of focus are resident education, including funding the International Education Fellowship and the Book and Education Fund, and raising money for endowed chairs and professorships.”

Another priority is to provide support for faculty research initiatives. “Donors can be part of the solution, helping accelerate better patient outcomes and premature disease prevention in whatever research areas they’re interested in,” Gorell said. “They can target their funding by working with Kathy.” For example, the Foundation recently set up a hip replacement research fund, based on a donor’s gift.

In addition to Wegner’s efforts, the Foundation is planning a unique event. The Spotlight on Orthopaedics is scheduled for May 3, 2017, from 5 to 8 p.m., at the McNamara Center on campus. “This is an opportunity for our clinical and laboratory researchers to present to patients who are interested in the department’s research,” Wegner noted.

Some of the Spotlight on Orthopaedics topics include:

1. Healthy Aging
2. Bone and Muscle Cancer Research
3. Joint Replacement for Arthritis

“The excitement in the department is contagious,” Wegner noted. “They’re doing breakthrough research that they want to tell the world about … this forum is a perfect opportunity to do that.”

For more information about donating to the Department of Orthopaedic Surgery or about the Spotlight on Orthopaedics, please email Wegner at wegnerk@umn.edu or call her at (612) 624-9107.

New Physician Hires

Deb Bohn, MD, Hand and Upper Extremity Surgery Fellowship: University of Minnesota. She practices at TRIA Orthopaedic Center and Gillette Children’s Specialty Healthcare.

Aaron Corfield, DPM, Non-operative Podiatry and Wound Care Podiatry Residency: Roxborough Memorial Hospital; He practices at the University of Minnesota Health.

SAVE THE DATE!

AAOS Annual Meeting UMN/VA Alumni Reception Friday, March 17, 2017 6:00-8:00 pm Omni San Diego Hotel 675 L Street San Diego, California Room: Gallery 2
NIH training grant helps support musculoskeletal research

A five-year, $1.2 million National Institutes of Health (NIH) training grant awarded to the Department of Orthopaedic Surgery and funded by the National Institute of Arthritis and Musculoskeletal and Skin Diseases, is opening doors for graduate students and postdocs doing research.

“The grant enables us to fund stipends for three Ph.D. graduate students and two postdoctoral fellows who are working in labs performing musculoskeletal research,” explained Kim Mansky, PhD, Division of Orthodontics, School of Dentistry.

She added that those students or postdocs must be working in musculoskeletal research labs. “Participants need to be performing research – either clinical or basic – and presenting their findings at meetings and publishing their results,” Mansky noted.

The grant is important because it means that mentors won’t have to pay the students’ stipends from their own NIH grants. “The grant also helps us build a community of researchers who are performing musculoskeletal research,” said Mansky. “This community has regular meetings to present research and participate in journal clubs. The meetings help musculoskeletal researchers at the university get to know each other and their research interests.”

The grant, which began in 2016 and runs through 2021, will have achieved 15 years of support and includes University of Minnesota School of Dentistry, College of Veterinary Medicine, Medical School, Departments of Orthopaedic Surgery, Pediatrics, and Genetics, Cell Biology and Development.