Wow, medicine is changing so rapidly! Adaptation is an essential ingredient for excellence, and the University of Minnesota’s Department of Orthopaedic Surgery is leading our profession’s response to change.

Our mission has always been threefold: excellence in education, research and clinical care. Recently, we added a fourth focus: leadership. While changes in health care have threatened academic orthopaedics, we have adapted to not only preserve, but also enhance our mission. The stories shared in this newsletter illustrate excellence and cutting-edge adaptation in all four of these areas.

A great source of strength for our department has been our mission-based partnerships. These include University of Minnesota Physicians (UMP) partnerships with Fairview University and Fairview Maple Grove, HealthPartners and Regions Hospital, and the Park Nicollet Health System. Currently, UMP represents one of the largest orthopaedic care groups in the state with 42 faculty members and 40 doctors now training in our residency program.

Our work with Fairview involves 18 faculty members, clinics based at the University and in Maple Grove, two adult hospitals (University and Riverside Hospitals) and Amplatz Children’s Hospital. Through these locations we provide the breadth of (continued on page 2)

Trend helps residents zero-in on what they need to learn

What do you get when you combine new core knowledge milestones with simulation technology? A trend in education that allows residents to be tested on and move through specific skills at an individualized pace. Called competency-based education, more and more medical departments are integrating this approach to enhance their programs.

“Simulation models have made it possible to teach and test, which dovetails with a competency-based education approach. It’s the first step in learning competency outside the operating room,” said Ann Van Heest, MD, professor and vice chair of education for the University of Minnesota Department of Orthopaedic Surgery.

Associate Professor and Residency Program Director Jonathan Braman, MD sees competency-based education as an educational efficiency that results in more didactic teaching. Residents can test through skills they know, and spend more time working on the techniques they need to hone. “It puts the right learner at the right place, at the right time,” he explained.

The key, added Braman, is to develop rigorous assessment milestones. The University of Minnesota is part of a nationwide group that’s working with the American Academy of Orthopaedic Surgeons to establish these guidelines.

This winter, the department began teaching its surgical interns using a new competency-based simulation approach for several procedures, including hand suture using loupe magnification, basic arthroplasty, joint injections, casting techniques, osteotomies, and application of a halo, as well as knee arthroscopy. Later this spring, the department will host a hand surgery education day, where residents will learn about and be tested on digital radial fractures, carpal tunnel release and trigger finger release.
Director, continued

orthopedic services for adults, as well as treatment of pediatric fractures and rare pediatric orthopaedic disorders. The recent formation of University of Minnesota Health will provide even more opportunities.

We now have eight full-time surgeons at Regions Hospital, where we have worked with HealthPartners Medical Group and Regions Hospital to provide programs in trauma, joint replacement, hand and upper extremity, elective cold trauma, foot and ankle, shoulder, and geriatric trauma (see story). In addition, Regions is a critical site for education and research. Peter Cole, MD is Chief of Orthopaedic Surgery at Regions and Professor of Orthopaedic Surgery.

Through our partnerships with TRIA Orthopaedic Center we also pursue all aspects of our mission. The partnership includes University of Minnesota Physicians, the Park-Nicollet Health System (PN) and PN physicians. We have 18 University of Minnesota physicians working at TRIA. Under the leadership of CEO and Professor Marc Swiontkowski, MD we provide surgical and non-surgical treatments across the orthopaedic spectrum, with emphasis on hand, shoulder, foot and ankle, spine, and sports medicine. TRIA provides seminal educational experiences and is a hub for our expanding, high-impact clinical research. This work focuses on defining, analyzing and improving costs and outcomes for treatment of common orthopaedic conditions, with the goal of determining how to deliver the highest value to our patients.

We hope you enjoy this inaugural issue. As always, please feel free to contact me with any questions or comments at clohi001@umn.edu.

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FAITH to help surgeons set global guidelines for optimal treatment of hip fractures

It’s not every day that physicians have the opportunity to profoundly affect what happens worldwide, but when it comes to the treatment of hip fractures, that’s exactly what Marc Swiontkowski, MD and other surgeons participating in the FAITH study hope to do.

Short for “Fixation Using Alternative Implants for the Treatment of Hip Fractures,” FAITH is a six-year international study that compares the effectiveness of two types of devices to fix femoral neck fractures, the most common location for hip injury.

Each year, about 280,000 Americans experience a hip fracture, with associated costs approaching the $9.8 billion mark. As our population continues to age, optimal guidelines for treating this injury will be increasingly important.

Swiontkowski is the principal investigator for the NIH-funded component of FAITH, which encompasses 42 centers in the United States, including Hennepin County Medical Center and Regions Hospital in St. Paul. Other participating countries include Australia, Canada, India, Netherlands and United Kingdom.

The purpose of the study is to determine which of two methods is most effective: using multiple small-diameter screws, which is the most common approach, or the use of one large-diameter screw with a sliding plate. While the sliding hip screw requires a bigger operation, it may result in a 24 percent less chance of revision surgery, based on a meta-analysis of the literature, explained Swiontkowski.

By the end of the study in 2016, physicians will have performed and evaluated a total of 1,200 surgeries.

Currently, the preference for treating hip injuries in North America is replacement over repair of the injured bone (internal fixation). For example, it took only a year and a half for clinics in the Netherlands to enroll 250 eligible patients, while in three years the U.S. enrolled 360.

FAITH is one of two studies examining the best ways to treat hip fractures with internal fixation. The other study, abbreviated HEALTH, compares the effectiveness of replacing only the ball over total hip replacement.

“I have long felt there are too many patients receiving prostheses who can be fixed,” said Swiontkowski. “Patients are usually better off with keeping their own hip whenever possible. This study will help us to determine if that is true.”

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Video helps kids see bright future after amputation

For children, the prospect of losing a limb to bone cancer can be terrifying. “A Whole New Life After Osteosarcoma Surgery” is an eight-minute video featuring interviews with kids living active lives with prosthesis. With an introduction by Edward Cheng, MD, the video was produced courtesy of the Karen Wyckoff Rein in Sarcoma Foundation, the Masonic Cancer Center Sarcoma Program and the Department of Orthopaedic Surgery.

To view the video, go to http://www.youtube.com/watch?v=DGIAvSpSD6o.
Back to basics: Doctor builds spine for girl using old principles in new way

Nine-year-old Aulana was born with no spine below her ribcage, the result of caudal regression, a rare birth defect that impairs the lower half of the body. Though she learned to get around by walking on her hands, Aulana’s internal organs were being squished, and she couldn’t sit without continually pushing up with her arms.

“She has a very severe form, which requires creative thinking,” said David Polly, MD, professor and chief of spine surgery at the University of Minnesota. For Polly, that thinking was to give Aulana her missing spine, allowing her torso to grow and make room for her internal organs.

Because they are so complex, surgeries for this condition are extremely rare and reserved for the most severe cases. The usual method is to amputate the legs and use leg bone to make a new spine. However, Polly saw a different future for Aulana: crafting new spine using one of her ribs and bone from a bone bank. He is the only surgeon in the world to have performed this procedure.

The donated bone is attached to the upper spine and pelvis. Then, Polly swings a rib and its blood vessels down to the graft, giving it a blood supply and, thus, the potential for the body to build new bone. The lengthening of the spine also lengthens major blood vessels, which can only take so much stretch at a time. Thus, the bone must be added gradually, requiring a series of surgeries over time.

Allograft reconstruction and vascularized rib grafts have been around, explained Polly, but current instrumentation allows surgeons to take these procedures to a new level.

“The more complicated the case, the more you need to go back to basics,” said Polly, “This is really about applying basic principles in a unique environment, and we’ve always had a strong focus on foundational principles at the University of Minnesota.”

Read more about Aulana’s new spine at http://discover.umn.edu/news/health-medicine/bright-new-idea-rebuilding-spines
Local hip fracture protocols to inform national model

When an initial evaluation of the elderly patient in the emergency room at Regions Hospital showed signs of hip fracture, staff knew right away what to do. They moved the patient out of ER to a more comfortable bed before continuing the admitting process.

At first glance, this seems like typical protocol. However, it’s just one example from a special pathway in place to meet the unique needs of older patients as they heal from hip fracture.

As director of Geriatric Orthopaedic Trauma at Regions Hospital, Assistant Professor Julie Switzer, MD and her team have spent the past seven years developing and fine-tuning patient-focused treatment pathways to improve outcomes for older patients. As a result, theirs was the first geriatric fracture program to be accredited by the International Geriatric Fracture Society. And, now, Switzer has been invited to join a panel of geriatric bone trauma experts to develop a national model.

Sponsored by Medicare, Rand Corporation and the Brookings Institute, the panel will recommend protocol pathways for geriatric hip fractures.

“Outcomes are better when we follow protocols,” said Switzer. “We use hip fractures as a model, because they are the most common geriatric fracture.”

Switzer’s interdisciplinary team integrates three treatment pathways. The intra-hospital geriatric fracture care pathway focuses on best practices for older patients. The second pathway is bone health evaluation and treatment for secondary fracture prevention. The third pathway — mobile outreach — is only one of a few such approaches in the country. Because transportation can be both difficult and costly for elderly patients, health care professionals come to them. Patients at more than 130 elder care facilities in the Twin Cities receive on-site evaluations, post-op visits, rehabilitation and other services.