Details are scrutinized at this collaborative

spine center,

including novel triaging, patient education, physical space and analysis of treatment data. >>

BACK PAIN MEETS SCIENCE

Data Drive Spine Center's Management

By the time Michael Waters, 15, presented at the Washington University Orthopedic Spine Center, he had become one of the 76 percent of Americans who suffer from acute back pain at some time during their lives. By seeking care at the center, Waters joined a smaller subgroup of patients being diagnosed and treated in new ways, using a model in which accuracy, prompt initial treatment and economy are priorities.

"Acute back pain is a huge problem, and we need to help those with everyday problems, not just the 'horrendiomas' that require tertiary care expertise," says **Heidi Prather**, associate professor of orthopaedic surgery, chief of physical medicine and rehabilitation and the center's director. Waters, a racquetball and baseball athlete, developed immobilizing back pain during the racquetball season.

"We don't want patients with acute or subacute symptoms to wait long for help," says Prather. The focus of the center is to see patients early in the development of their symptoms to provide a specific diagnosis and treatment plan. Patients with spine symptoms for less than three months are evaluated by a spine specialist within 48 hours of calling the center. To meet this goal, a simple triage system was created by the spine center staff and has been implemented by the department's scheduling center.

When Waters arrived at the center, his first interaction involved filling out three standardized questionnaires about his pain, function and quality of life. Next, a spine specialist evaluated him and made a diagnosis based on the history and physical examination. To refine the general classification of "acute back pain" and make it instructive, patients at

Heidi Prather evaluates patient Michael Waters at his initial physical therapy session. At the Spine Center, physical therapy may begin the same day as the initial physician appointment.

the center are assigned to one of 12 subgroups that become the "patient treatment pathway" created by the center's spine specialists and physical therapists from the Sports Therapy and Rehabilitation (STAR) program at the Orthopedic Center. This classification system allows patients to be subgrouped into types of disorders and directs the patient care pathway initiated at the first patient visit. Patients are given verbal and written educational information based on the pathway. With this comes information regarding activities to do and avoid and three therapeutic exercises used as a starting point to facilitate recovery. By individualizing treatment and learning which patients do best with which approach, Prather and her colleagues aim to develop protocols that will guide practitioners and satisfy insurance companies.

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"Knowing up front what's wrong, getting to patients before other treatments have been applied and eliminating patients being bounced between health-care providers should help keep costs down," Prather says. And although common practice is to send patients immediately for X-rays or an MRI, Prather says that of the first 90 patients seen at the center, only 20 percent were referred for imaging. If imaging is needed at the initial or follow-up visit, radiography and MRI are available on site.

Waters' case did require imaging to determine that he had a stress reaction, swelling in the bone that occurs prior to the onset of a fracture. This type of injury is not uncommon in adolescent athletes involved in sports that require repetitive back extension or rotation. In Waters' case, the care pathway used a dedicated MRI protocol established by Washington University radiologists and implemented at Barnes-Jewish West County Hospital.

Prather prescribed a brace to immobilize Waters' lower back for six weeks and physical therapy specific to his injury and sport provided by sports experts at STAR, located in the same medical building at the Orthopedic Center. Patients may receive their initial physical therapy evaluation on the same day as their initial physician evaluation at the center.

With bracing and customized physical therapy, Waters' condition, which typically takes three to six months to resolve, improved quickly. "I wore the brace for six weeks, then started working out to see how I felt," he says. "I was a little stiff but didn't have any pain. I'm still doing physical therapy, learning to use my muscles differently and practicing to return to shortstop for the Kirkwood High Pioneers' spring season. I'm already swinging as hard as I can. Without this treatment, I would have fractured my vertebrae," he says.

Prather is one of five physiatrists who see new patients at the center. Physiatrists are the appropriate first contact for acute spine pain because they consistently evaluate the links within the entire musculoskeletal system, Prather says. She adds that with physiatrists' broad-based training and experience, they often recognize co-existing problems such as a shoulder complaint that coincides with neck pain or hip involvement in patients with low back pain. The physiatrists work closely with two orthopaedic spine surgeons at Barnes-Jewish Hospital, **Jacob Buchowski** and **Lukas Zebala**. Collaboration among spine specialists includes viewing films and sharing an open space designed to foster collaboration, the free flow of information and ease of scheduling when surgery is necessary. "We can't practice in silos and be effective," Prather says. Creating the center meant defining a physical space conducive to the work and welcoming to patients. She credits department administrators for their willingness to take the financial risk involved.

Every patient receives educational information first from the physician, but this is reinforced by the clinical nurse coordinator, Mindy Brinkhorst, RN, who reviews the information with every patient at

the end of his or her initial visit. Patients are re-evaluated within a month of the initial visit by the spine center's nurse practitioner, Corri Payton, ANP-BC, who reinforces the team's messages. "Studies show that patients remember about 30 percent of what the doctor tells them," Prather says, "so we deliver our information again, hoping that reinforcement will allow patients to walk away feeling educated and satisfied with the plan of care."

The Orthopedic Spine Center offers nonsurgical patient-specific treatment options, including medications, physical therapy, occupational therapy, bracing, orthotics, injections, massage therapy and acupuncture. For more information, visit **ortho.wustl.edu/spinecenter.**

Brinkhorst, who guides patients through the processes at the center and collects data, says that as American medical care changes, the group hopes to stay in front of anticipated pressure to validate all treatment. "We'll be expected to show that what we're doing is appropriate and cost-effective," she says, and the center is dedicated to improving its practices as it goes.

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The center has treated 120 patients in its first few months, and already, data collection and tracking have proven to be more time-consuming and demanding than anticipated. "Independent physician practices place all acuity demands on a single physician which, over time, reduces a patient's access to care," Prather says. "The goal of the spine center is to develop basic parameters and standardization of simple diagnostic subgroups so that patients can be evaluated and receive the best care in the acute and subacute setting and not wait for the availability of one practitioner. Tracking data that is available to the health-care provider at each visit will allow us to improve our decision making and treatment recommendations." Fine-tuning the data collection process to ensure that all information being tracked is meaningful is a challenge, especially since outcomes are just now becoming available.

Triaging appropriate patients to the practice is another obstacle the group faces. "Our service is not something a referring physician would naturally connect to Washington University," Brinkhorst says.

By working collaboratively to overcome the hurdles, Prather believes that the center will grow to become a new model of data-driven approaches to care. The center aims to provide increased efficiency, improved cost-effectiveness and more intelligent use of resources, all while keeping a tight focus on restoring function and limiting pain for patients. ◻