Close collaboration between operative and non-operative providers is important in providing patients access to the most appropriate care for their specific condition. Many spinal disorders may be treated effectively with physical therapy exercises, behavioral and occupational therapy, injections, and medications. Other spinal disorders, including symptomatic nerve compression, progressive spinal deformity, or conditions causing spinal instability, may be more effectively managed by early access to operative care.

The UCSF Spine Center is home to a multi-disciplinary team that includes orthopedic surgeons, neurosurgeons, neurologists, cancer specialists, physiatrists, radiologists, rheumatologists, nurses, physical therapists, and pain specialists.

“Our goal at UCSF is to provide our patients with access to the highest quality of care across the continuum of non-operative and operative care,” Sigurd Berven, MD, chief orthopaedic surgeon at the UCSF Spine Center, said. “In doing so, we strive to achieve seamlessly integrated protocols at each phase of care. The end results are shared decision making, patient-centered care, and positive outcomes.”

From making the decision to operate to pre-operative optimization of health status (prehabilitation), intra-operative care, post-operative management and post-discharge support, the Spine Center strives to make each phase in a patient’s journey to wellness as consistent and evidence-based as possible.

**Pre-operative considerations**

Even when surgery is considered the best treatment choice, there is a wide range of procedures to fit each diagnosis. “At UCSF we specialize in complex spine surgery that may involve major spinal reconstruction, as well as minimally invasive procedures that can be done on an outpatient basis,” said Praveen Mummaneni, MD, co-director of the Spine Center and director of minimally invasive surgery. “This wide range of expertise allows us to guide patients to the procedure that is going to give them the best result with the fewest complications.”

(cont. on pg. 2)
Is There an Age Limit for Major Spine Surgery?

An aging spine is one of the greatest barriers to a healthy, active lifestyle in our later years. Surgery may often be dismissed as too risky beyond a certain age, but that mindset may not be based on today's best evidence.

Adult spinal deformity, which can result from disk degeneration, spinal arthritis, and prior surgeries that fail to align the spine, is an increasing problem among aging Americans. Today many people over the age of 60 expect to be more active in their later years, and an increasing number of them are opting for surgery to alleviate symptoms of spinal deformity and slow further degeneration.

Major spine surgery can often be dismissed as too risky for elderly patients, but there is evidence that this population can have good outcomes and that rates of morbidity and mortality are generally low.

“We’ve seen that some elderly patients have even better outcomes than their younger counterparts,” said Christopher Ames, MD, co-director of the UCSF Spine Center. “It’s very encouraging to know patients’ lives can be significantly improved and they can be active and mobile after treatment for these conditions in their later years.” This year Ames was nominated for the Scoliosis Research Society’s Hibbs and Whitecloud awards in recognition of his work on novel methods of risk stratification and complication prediction for adult spinal deformity.

Orthopaedic surgeon Shane Burch, MD, has seen similar positive results for many of his elderly patients. “Our team recently operated on a 94-year-old female patient with scoliosis and saw remarkable improvement in her ability to walk and participate in activities of daily living,” he said. But these results are largely anecdotal, based on individual surgeon experience and retrospective analyses, and there have been few prospective studies with long-term follow-up.

The UCSF Spine Center has recently completed enrollment for a prospective, multicenter study that will follow outcomes for patients over the age of 60 who have undergone spinal fusion of five or more levels for moderate or severe spinal deformity. Improvement in health-related quality of life will be measured using a validated patient questionnaire (SRS-22r), comparing scores from baseline and 24 months. Data will be captured at 13 sites in North America, Asia, and Europe.

Ultimately, analyses of the data gathered through this study will result in improved metrics for selecting the patients who are most likely to have successful surgery without serious morbidity or mortality.

While this study examines multi-level fusion, some older patients with less severe deformity may be good candidates for minimally invasive procedures that can be done in an outpatient setting. UCSF is home to one of the largest spinal deformity practices in the United States. This vast experience allows neurosurgeons and orthopaedic surgeons to individualize treatment according to deformity type, age, and other patient-specific factors and activity goals.

When did you know you wanted to go into the medical field?
I cannot remember a time before wanting to work in medicine. My parents prioritized travel to allow my brother and I to see the world at a young age. Visiting developing countries like Cambodia and India made a lasting impact on me. Seeing first-hand the universal aims of happiness and health cemented in me a desire to give back through medicine.

At the University of Michigan, I studied in Health Sciences Scholars Program, a learning community oriented around healthcare. I was introduced to professions beyond the medical doctor. I realized that health care is afforded by a multidisciplinary team, each member playing an important role. The role of physician assistant best suited me. As an essential member of a patient’s health care team, what kind of support do you provide?
The most crucial role I play is patient education. The thought of spine surgery is often overwhelming to patients. They frequently return home after visiting with the surgeon, failing to recall the conversation. That is where I step in. I take time to explain the procedure, the recovery process, and to align expectations. By patiently answering their questions, I aim to make the thought of surgery less daunting.

What’s the best part of working at UCSF?
At UCSF you’re working among the elite providers and seeing the most difficult cases. As a research hospital, we have early access to the newest research and techniques. The environment elevates us all to be our best selves.

What’s the most common question you get from your patients?
When can I do sport? When can I do activities again? When can I do anything? When can I do nothing? When can I do anything?

When a patient has decided to undergo surgery, the Spine Center applies four standardized protocols to assessing each patient’s case: risk assessment, medical optimization, surgical planning, and physical optimization.

“The decision to pursue surgery is a shared decision between the patient and the surgeon, and informing patients of their options, and the expected outcomes of those options, is fundamental to our effort to empower patients to make informed choices,” said Berven.

During this process, UCSF assesses specific characteristics of each patient – such as blood sugar control, body mass index, physical conditioning, cardiopulmonary factors, history of smoking, osteoporosis, nutritional considerations, and use of narcotics or other pain medications – to best optimize surgical planning.

“Having a standard protocol in the pre-operative assessment process is key to minimizing surgical risks and optimizing outcomes of care,” said Berven. “With this process in place, we create a culture of safety as a top priority for our patients.”

Intra-operative protocols, post-operative care
Once a patient is admitted for surgery, the Spine Center has a tightly defined list of protocols to ensure patients achieve the best outcomes. Intra-operative considerations include blood conservation/fluid management, neuromonitoring, standard protocols for surgical techniques, and pain management to reduce complications.

Following surgery, every patient is managed using standardized protocols for early mobilization, nutritional optimization, pain management, and prevention of medical complications, such as infection, pneumonia, deep vein thrombosis, delirium, and cardiac and pulmonary problems.

Discharge planning, from arranging a patient’s transportation home to planning rehabilitation and physical therapy, is also an integral component of the Spine Center’s approach and its mission to providing individualized and case-based optimal care.

“We strive to get patients mobile as soon as possible following surgery,” Berven added. “Patients who have shorter hospital stays and a solid plan toward at-home recovery tend to have best outcomes. This concept is a product of our evidence-based approach to care based upon rigorous assessment of outcomes. The UCSF Spine Center offers a unique service for our community and for the Western Region, and offers the framework for improving the approach to spinal disorders on a national level.”
Save the Date: The 6th Annual UCSF Techniques in Complex Spine Surgery Course

November 4-5, 2016
Las Vegas, NV

The 6th UCSF Techniques in Complex Spine Surgery Course is a two-day course emphasizing pioneering trends in spinal surgery. This course is designed to be interactive with didactic lectures given by leaders in the spine community as well as a hands-on bioskills lab portion that takes place at the Medical Education and Research Institute in Nevada (MERIN).

Participants will review and practice surgical principles and techniques in the treatment of spinal deformities and tumors. As a result of hands-on sessions and case conferences, residents, fellows, and surgeons with less than an advanced level of experience will have improved skills in cases dealing with complex spinal deformities.

Register for an early bird rate by October 15 at cme.ucsf.edu

Residents/Fellows - Applications for scholarships are available. Please contact Lori Justice at Lori.Justice@ucsf.edu

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