



Spine Community: Better Care, from the Complex to the Routine

It's one of the greatest challenges for a health care institution that treats diverse cases at many locations: How do you ensure that every patient receives the best care by the most appropriate specialists at the right clinical site? Clinical communities, which connect specialists from different departments and across 49 Johns Hopkins sites, are designed to do just that.

The Armstrong Institute for Patient Safety and Quality is home to 20 clinical communities at Johns Hopkins, including the Spine Clinical Community. These physician-led, self-governing networks gather clinicians from across the health system to determine best practices and implement those protocols across departments so every patient receives optimal care.

"If I see a very complex spine patient that I think would be best served at a different location, I have strong ties and the ability to easily refer the patient within the network so they can be treated by a surgeon who does 50 or 100 cases of that type a year," says **Jay Khanna**, an orthopaedic spine surgeon and one of the leaders of the Spine Clinical Community.

The Spine Clinical Community, also led by spine surgeon **David Cohen** and neurosurgeons **Jean-Paul Wolinsky** and **Joshua Ammerman**, meets monthly to analyze issues at each site, identify ways to improve efficiency and ensure optimal patient outcomes.

The leaders of all clinical communities at Johns Hopkins meet regularly to learn what each group is doing. By working together, they develop pathways for routine cases and ensure that complex cases, such as spine patients requiring vertebral column resection, are treated by the most experienced teams.

Khanna explains how the pathway for anterior cervical decompression and fusion (ACDF) changed as a result of the close collaboration. "The surgeons at Sibley Memorial Hospital and Suburban Hospital



BY THE NUMBERS:

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Spine surgeons **David Cohen**, left, and **Jay Khanna** lead the Spine Clinical Community with neurosurgeons **Jean-Paul Wolinsky** and **Joshua Ammerman**.

had a very streamlined, safe and efficient pathway for their ACDF procedures. They were using surgical drains less often, which was helping to decrease the length of stay because patients could go home on the same day, and they weren't having problems with hematomas," he says. "We've been able to translate some of those efficiencies from the community hospitals to the larger hospitals and vice versa."

Peer learning helps physicians standardize quality care. "At one hospital," says Khanna, "we had a pain management protocol using medications we can give to the patient before surgery that helps get them home more quickly. At another hospital, we were able to evaluate intensive care unit utilization for complex spine patients. We are continuing to look at which factors should lead to an intensive care unit stay after surgery and which patients can go directly to a typical floor bed and get mobilized sooner to help avoid events like deep venous thrombosis, pulmonary embolism and pneumonia. That's an example of how we've been able to learn from each other and continue to provide the best care possible for patients who seek to have their spine condition treated at a Johns Hopkins facility." ■

Sarcoma Care: Meeting of the Minds

Orthopaedic surgeon **Adam Levin** knows that close collaboration is the key to good outcomes for cancer patients. “Our multidisciplinary approach to difficult soft tissue and bone sarcomas is better than any I have ever seen,” he says.

As he prepares for the weekly tumor board meeting, where the case of nearly every sarcoma patient at Johns Hopkins is reviewed, Levin describes the meetings value. “This forum lets us bring everyone into the room for a true multidisciplinary discussion about the patients, their treatment and their follow-up,” he says.

Attendees include specialists from orthopaedic surgery, adult and pediatric medical oncology, general surgical oncology, radiation oncology and neurosurgery. Additional surgical subspecialists, such as plastic surgery, urology, vascular surgery and gynecology, are consulted as needed.

But the collaborative approach to patient care does not stop there.

Every other week, the team holds a multidisciplinary sarcoma clinic organized by **Carol Morris**, co-chief of orthopaedic oncology. Patients send their medical images in advance and come for a “one-stop” consultation with all of the appropriate services. Rather than having to coordinate visits with multiple specialists, patients save time and energy with just a single appointment. This is particularly helpful for patients traveling from outside the state.

“We work closely with our sarcoma-dedicated specialists in pathology and radiology,” says Levin. “They integrate into our preoperative and postoperative conferences and our day-to-day discussions of the pathology findings. With this approach, we are able to do smaller biopsies very quickly with a high success rate and great degree of accuracy.”

This integration also allows precise coordination of interdigitated chemotherapy and radiation therapy. Before surgery, radiation oncologists and medical oncologists plan alternating sessions to treat high-grade soft tissue sarcomas to produce the maximum benefit.



Carol Morris, pointing, discusses a sarcoma patient case with attendees at a tumor board meeting, including Adam Levin, far left in the front row.

In addition to its clinical collaboration, the sarcoma team coordinates its research efforts. Patients in the sarcoma clinic have donated blood and tissue to a tissue banking protocol. “Because of patient contributions to our research, we can look at sarcoma pathways down the line and investigate novel therapeutics,” says Levin.

The sarcoma team meets every two weeks to review clinical and translational research projects and interests. This optimizes coordination, stimulates new ideas and develops broader perspectives on patient care.

In an ongoing effort to improve coordination and access to care, the Department of Orthopaedic Surgery has added two surgeons to the sarcoma team. **Richard Schaefer** has had a distinguished military career and brings a wealth of clinical and educational experience, and **Jonathan Forsberg** will help integrate the care of patients between The Johns Hopkins Hospital in Baltimore and Sibley Memorial Hospital

in Washington, D.C. They will both support the collaborative efforts of the sarcoma team.

Teamwork continues to be the mantra. “We’re bringing together researchers and clinicians from different backgrounds to solve problems,” says Levin. “This collaborative approach is why I’m here.” ■

● Each week, specialists from various departments meet to discuss each patient at a tumor board meeting.

● Every other week, a multidisciplinary clinic provides “one-stop” consultations for patients.

● Every two weeks, there is a meeting to review clinical and translational research projects.



TRANSLATIONAL MEDICINE

Finding Answers for Children with Rare Bone Disorders

Pediatric endocrinologist **Janet Crane** has a vision. Her work studying bone mineral metabolism disorders leads to the moments when she can apply her findings to the children she treats in her clinic. “I may not have an answer for them now,” she says, “but I know how I’m working to get one.”

Crane works with faculty members **Mei Wan**, **Tao Qiu** and others under the mentorship of **Xu**

Cao, director of the Center for Musculoskeletal Research.

“Xu is an amazing basic scientist and bone biologist,” Crane says, “and he’s very interested in taking his discoveries and translating them to humans. I can help take his basic science, prove that it has a translatable implication, and then hopefully take that to the next level and get it into the clinics.”

Cao’s laboratory was designed to foster collaboration across specialties. “He’s built this sort of research mecca, bringing together people with diverse backgrounds,” says Crane. “We’ve had dentists, orthopaedic surgeons, Gyn/Obs, endocrinologists, basic scientists and clinicians. When we discuss an issue, we all come at it from a different angle. That’s how you really get at the critical question.”

Crane received a National Institutes of Health career development award, which allows her to devote 80 percent of her time to research. This lets her focus on analyzing treatments for childhood disorders, such as glucocorticoid-induced osteoporosis and skeletal fragility.

Her specialization brings patients from overseas, including a boy whose parents recently sought help treating his osteogenesis imperfecta. “It’s hard for patients because they’ve seen a lot of people who have said, ‘I don’t have any idea how to help you,’” Crane says. “Then they come to me, and I say, ‘This makes perfect sense! This patient has something really rare.’”

Crane diagnosed her patient as growth-hormone deficient and initiated combination therapy of growth hormones and bisphosphonates. She’ll monitor his

Voorhees Fund Rewards **Excellence and Humility**

When her son Kevin injured his back shortly before he was to join the University of Southern California swim team, Nancy Voorhees knew who to call: Johns Hopkins, where she had received excellent care in the past. There, she believed she would be able to connect with the appropriate experts, and she was right.

Kevin was quickly seen by **Sameer Dixit**, a primary care sports medicine physician. “Dr. Dixit told him he needed physical therapy,” says Voorhees. “And Kevin said, ‘I’ve seen three physical therapists, and each one tells me a different thing.’ But Dr. Dixit said, ‘Physical therapy is what’s going to make you better.’”

Dixit didn’t send Kevin to just any practice. “We walked into the waiting room,” says Voorhees, “and everybody had wet hair! That’s when I realized this therapist works with swimmers. It really helped because he could tell Kevin exactly what he could do, which strokes to avoid.”

Eight weeks later, Kevin was rehabilitated and off to California as planned. “It was a miracle,” says Voorhees, who says Dixit’s clinical judgment was what she had come to expect from Johns Hopkins.

Recently, Kevin injured his ACL while playing basketball. “I called Dr. Dixit again and asked him what we should do,” says Voorhees.

Although Kevin was now living in Los Angeles, he flew back to Baltimore for preoperative consultations with the orthopaedic experts at Johns Hopkins, including Dixit and his colleague in sports medicine, **John Wilckens**. “They walked us through the decision and assured Kevin that they would treat him as their patient, wherever he had the surgery,” says Voorhees.

Kevin is now recovering under the care of a physical therapist whom Dixit was able to recommend near his home in Los Angeles.

These experiences of excellent clinical care,

personal attention and ongoing guidance in health care decisions for both her and her son inspired Voorhees to support the Department of Orthopaedic Surgery through a grant from the Community Foundation for Northern Virginia’s Alan M. and Nathalie P. Voorhees Fund, established by her late parents to build a legacy of philanthropy.

Alan had been a pioneer in the field of transportation planning. “Before 1950, if you wanted to build a road, you just built it,” says Voorhees. “There was no planning. The fact that this was a brand-new field excited him.”

She describes her father, a frogman in World War II, a renowned urban planner, an entrepreneur and a collector, as valuing innovation, hard work and humility. She says her mother, a secretary with the U.S. Department of State and volunteer with Bethesda Help, was equally hardworking.

Asked how her parents might regard the department, Voorhees says: “My father would like that they’re tops in the world. My mother would like that they don’t have any arrogance about it.”

After a lifetime dedicated to pursuing excellence, Alan and Nathalie Voorhees, through their fund, continue to support institutions that embody the same. ■



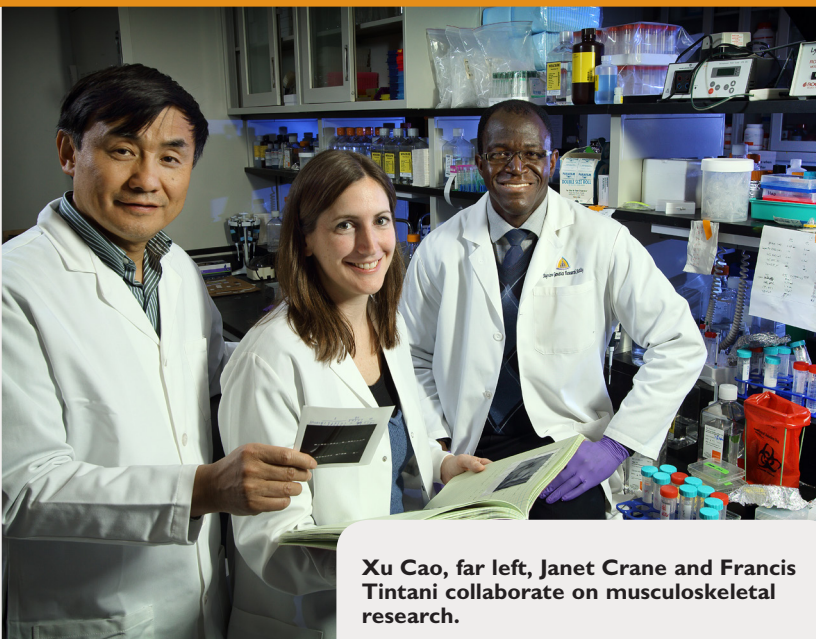
Nancy Voorhees provided a grant from a foundation established by her parents.

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Xu Cao, far left, Janet Crane and Francis Tintani collaborate on musculoskeletal research.

progress over the coming months.

A colleague of Crane’s, research fellow **Francis Tintani** is often asked why he, a pediatric endocrinologist, works in a bone lab. He explains: “The beauty of this lab is that we have a lot of collaborative workers. They have expertise in spine, orthopaedics and endocrinology. There’s so much intensive collaborative work that we can do in terms of clinical and basic science research. Most of our work ends up not sitting on the bench but going to the clinic.”

The reverse is also true. After treating a patient with severe hypocalcemia, Tintani delved deeper to find out why a genetic mutation in the calcium-sensing receptor

was causing low calcium, as it typically causes hypercalcemia. Investigation uncovered a de novo mutation, which Tintani is now examining for clinical applications.

For these specialists, research is not about answering theoretical questions but about finding better ways to diagnose and treat the young patients who rely on their care.

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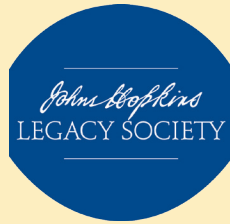
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Framework

This newsletter is one of the many ways we seek to enhance our partnership with our thousands of friends and patients. Comments, questions and topics you would like to see covered in upcoming issues are always welcome.

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