



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



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

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.

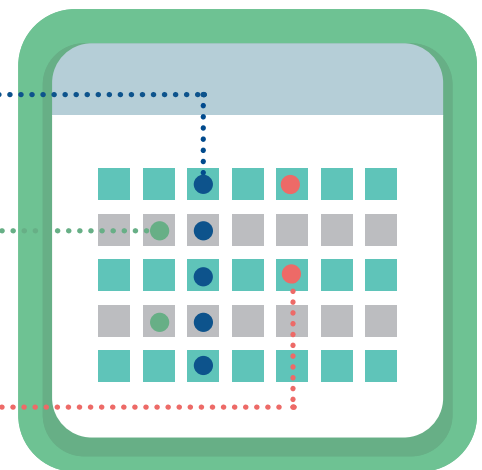
In addition to its clinical collaboration, the sarcoma team coordinates its research efforts. Patients in the sarcoma clinic have donated blood and tissue to a tissue banking protocol. “Because of patient contributions to our research, we can look at sarcoma pathways down the line and investigate novel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

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● 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

Women in Orthopaedics, Leading by Example

Dawn LaPorte understands the importance of attracting women to the historically male-dominated field of orthopaedics. “You want to have an orthopaedic faculty that represents the population and has diversity so you can provide that for your patients,” says LaPorte. “Also, if 49 percent of the graduating medical students are women, you’re missing out on more than one-third of the top talent if you only match 13 percent women.”

As the vice chair of education for the Department of Orthopaedic Surgery, LaPorte believes female role models are key to overcoming the pervading myth of orthopaedics having a “jock” or “fraternity” culture.

“At institutions where there aren’t many women residents or faculty members, it’s hard for a female medical student to say, ‘I could pursue that career,’” she says. “Johns Hopkins has outstanding female faculty members, and we also have five female residents in the program. I think it helps students to see what it’s like to be at each level, to see that women are welcome.”

LaPorte leads by example, recently becoming the second woman to hold

a full professorship in the department. For residents, LaPorte serves as a role model and mentor. Two current faculty members, **Casey Humbyrd** and **Miho Tanaka**, director of the Women’s Sports Medicine Program, studied as residents with LaPorte as their program director.

Under LaPorte’s leadership, Johns Hopkins has hosted the Perry Initiative, which provides early exposure to orthopaedics for female high school and medical students. “It’s hands-on exposure to orthopaedic surgery,” says LaPorte. “We have female and male orthopaedic faculty members and residents teach and interact with these young women to show them what a great career orthopaedics can be.”

During her tenure, the residency program has added a motor skills lab at Johns Hopkins Bayview Medical Center, where residents are led by experienced faculty members. “The lab is hugely important for hands-on learning. The residents are able to do procedures on cadavers, including spinal implantation, hip and knee arthroplasty, and arthroscopy. It’s the perfect way for them to learn in a lower-pressure environment,” says LaPorte.

The innovations and collaboration in the orthopaedic residency program at Johns Hopkins recently attracted the attention of the president of the Chinese Orthopaedic Association. This spring, LaPorte will travel to China to assist the largest hospital system in northwest China develop a program with a similar structure.

“China is now looking for more standardization, oversight and assessment of competency,” she says. “We’re going to work with them to help develop a structure for that.”

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Dawn LaPorte’s Leadership Activities

■ THE PERRY INITIATIVE

Exposes female high school and medical students to orthopaedics.

■ MOTOR SKILLS LAB

Experienced faculty members lead residents in practice procedures.

■ CHINESE RESIDENCY PROGRAM

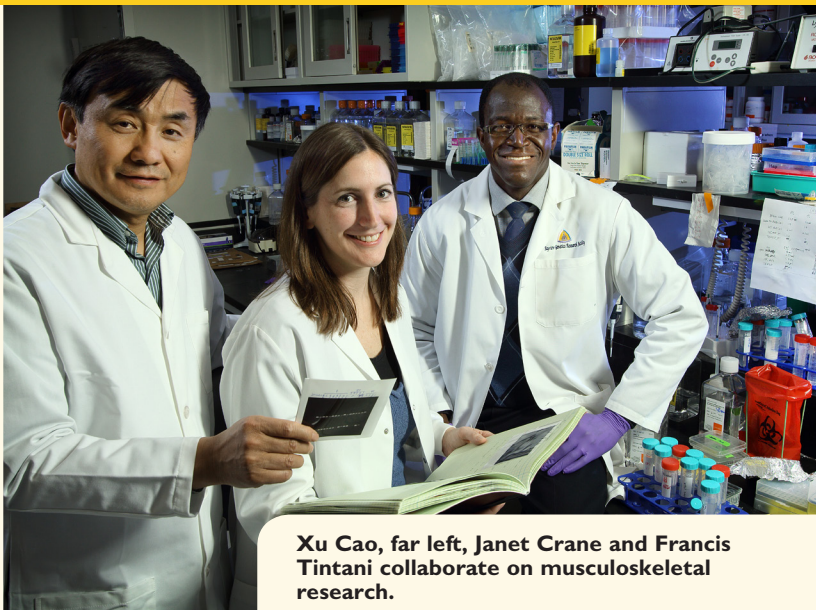
Assists a large hospital system in developing a residency program.

Women in the Department of Orthopaedic Surgery include, from left to right, Dawn LaPorte, Lynne Jones, Miho Tanaka, Carol Morris, Janet Crane, Casey Humbyrd and Mei Wan.



“At institutions where there aren’t many women residents or faculty members, it’s hard for a female medical student to say, **‘I could pursue that career.’**”

- Dawn LaPorte



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.

The Center for Musculoskeletal Research was established with a major philanthropic gift from an anonymous donor and has received generous support from the Estate of Bradley K. Fox, the Erwin and Stephanie Greenberg Foundation, and the John D. Rockefeller IV Trust. ■

Sarcoma Care: Meeting of the Minds (continued from page 2)

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." ■

Women in Orthopaedics, Leading by Example (continued from page 3)

A robust resident education program, early exposure to the field and diversification are important steps in moving the specialty of orthopaedics forward. "We're training the future leaders of orthopaedics, the ones who are going to make a big difference," she says. ■

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

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