

Case Study: Clinical Integration



At an academic medical center, interventional radiologists and neuroradiologists are embedded in patient clinics and collaborating at the point of care.

By Linda G. Sowers

Key Takeaways:

- The clinical practice of interventional radiology (IR) and interventional neuroradiology (INR) is integral to patient care at the University of Tennessee Medical Center in Knoxville.
- Multidisciplinary clinics in the Cancer Institute and the Brain & Spine Institute allow patients to see various providers in one visit, discuss issues and options, and engage in the care plan.
- Referring physicians count on the IR and INR specialists as invaluable partners of the collaborative patient care team.

In 2013, a 62-year-old man from a rural county in the central Appalachia region of Tennessee was diagnosed with a large, biopsy-proven hepatocellular carcinoma. Due to his lack of trust in the medical system, he delayed further assessment and treatment of the tumor for nearly three years. In early 2016, with symptoms worsening, the patient finally arrived at the University of Tennessee (UT) Medical Center's Cancer Institute.

Keith D. Gray, MD, MBA, associate professor and chief of the division of surgical oncology, immediately ordered new scans and quickly realized that the man's right-sided liver cancer had grown to approximately 15 centimeters. Realizing chemotherapy is not typically effective for a hepatocellular carcinoma, Gray raised several questions: Can the tumor be resected? Does the patient have enough healthy liver on the left side to facilitate resection? If not, what are his other treatment options?

Answering the Call

For answers, Gray turned to the UT Medical Center's multidisciplinary clinic for patients with liver and pancreatic diseases. The clinic was established in 2015 with instrumental guidance from the department of radiology and its chair, Laura K. Findeiss, MD, FSIR, who is an interventional radiologist.

"At UT Medical Center, we pride ourselves in designing a unique treatment regimen based on each patient's diagnosis and needs," says Gray. "Interventional radiology is a key player in providing that type of personalized care for our patients. Whether it is preparing for surgery or determining an alternative to surgery or helping us with complications related to surgery, we view the interventional radiologists as a part of the team. It's not an afterthought. When we're thinking about the plan, the options they bring to the table are always considered."

Every Monday, a team of oncology caregivers — including surgical, medical, radiation, interventional radiology, gastroenterology, and nurse navigators — participates in a same-day clinic for liver and



Interventional radiologists and interventional neuroradiologists are integral members of patient clinics at the University of Tennessee Medical Center in Knoxville.

pancreas patients. In a multidisciplinary conference beforehand, providers gather to review the imaging and treatment options for each of the patients. "It's not mandatory; there's no CME credit," notes Findeiss. "But the physicians and nurses continue to show up to the conference every Monday and are enthusiastic about providing the best care possible. And when a patient sees various providers across the clinic, everyone is on the same page."

For patients, the clinic means they can see all caregivers in one visit, which is especially important for those who are constrained by socioeconomic pressures and remote locations. "We often have a difficult time getting those patients the care they need and getting them back and forth to appointments," says Findeiss. "With the clinic, it's a long day for the patient, but it's all done in one trip. It's one day off work, one tank of gas."

Navigating the Pathway

In the case of the wary liver cancer patient, that collaborative approach proved invaluable. "We knew if he was a candidate for resection, he would need hypertrophy of his liver remnant via a portal vein embolization," remembers Gray. "But if we did the portal vein embolization, that would preclude us from doing regional therapy if he turned out not to be a candidate for surgery. It's a pretty complex pathway,

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Continued on next page

Case Study: Clinical Integration



Continued from previous page

and we were dealing with a patient who didn't trust the system. We were on the fence when we first went into the clinic, but we worked through all the questions together and had a plan going into the afternoon."

A laparoscopic ultrasound found occult liver disease in the left side, which precluded the patient from surgical intervention. Then Findeiss scheduled the patient for a minimally invasive radio-embolization (Y90) to the right side of the liver. "The patient showed up for his treatment with Dr. Findeiss, and now he's on his way," emphasizes Gray. "Thanks to the clinic, it went off without a hitch — whereas if the patient had to come back for five different appointments, he may not have engaged further and received the proper treatment."

Establishing a Footprint

The weekly clinic grew out of the IR clinical practice that Findeiss and her team established at the Cancer Institute in 2014. "Initially, a lot of our IR work was cancer related, so we asked the cancer center about leasing clinical space to see patients in their clinic. At first, it was a half-day a week, then we progressed to a second half-day, then a third," says Findeiss. "The goal was to establish a footprint. This is our day to see patients; we're not getting pulled into IR procedures. That's also the challenge, because you're not generating revenue at the outset. The others in your practice need to have faith it will grow and add value — without a lot of cost."

The faith in Findeiss was well placed. Being in the cancer center with the oncologists and seeing



The IR and INR clinical practices are key to the consultative radiology platform established by radiology chief Laura K. Findeiss, MD, FSIR, an interventional radiologist.

patients concurrently helped the IRs establish strong relationships with other physicians and demonstrate their value, which led to additional referrals. "We view Dr. Findeiss and her IR team as a collaborative partner, as an integral member of the team, not as an adjunct," says Gray. "IR is involved in day-to-day decision-making about complex oncology patients. They're approachable, they're knowledgeable, they're available, and they're engaged. As she continues to build her team, she brings in like-minded people to expand that footprint. This is the approach to transform into the next generation of patient care."

Expanding the Imprint

As word of the IR clinic's success spread, the IR team began making changes to optimize the clinical practice of interventional neuroradiology (INR). "One of the neurosurgeons who performs a lot of vascular neurosurgery asked if we could see patients concurrently in the neurosurgery clinic," says Findeiss. "Now our INR specialists have a combined clinic with them one morning a week where they work side-by-side with the neurosurgeons."

Andrew S. Ferrell, MD, director of neuro-interventional services at UT Medical Center, says that the INR team collaborates on all of the cases, and sees some patients together with a neurosurgeon and some independently. "If a patient is an equal candidate for clipping versus coiling or intravascular therapy versus an open therapy, they can see both of us at the same time, in the same place," he says. "Patients understand that we are truly giving them the best options to make an informed decision about their care."

The comprehensive stroke team also takes a multidisciplinary approach to patient care, with a biweekly neurovascular case conference. "We present cases to ensure the plan is appropriate from everybody's perspective," Ferrell explains. "As a team, we also review past cases to assess lessons learned and identify changes to improve patient care. The neurovascular case conference is what glues us together."

Creating Convenience

Ultimately, Findeiss says the joint clinical practices provide convenience for the patient and for the referring physicians. "Before, patients would see one physician, who provided a referral to IR or INR and then the referring doctor had to jump through hoops for pre-authorization and scheduling," she notes. "Once we put the IR doctor into the clinic, everything goes

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Continued on next page

Case Study: Clinical Integration



Continued from previous page

through our process. We're pre-authorizing patients, setting appointments, and handling everything on the back end, so it takes some of the burden away from overworked office staff. The patients are happier, and the physicians and their staffs are happier."

David Hall, senior vice president and chief operating officer at UT Medical Center, who is a champion of the clinical practice of radiology, sums up its value to patients and to the organization. "Clinical integration breaks down silos in health care. The multidisciplinary clinics allow patients to ask questions and providers to discuss issues and options collaboratively with patients and one another. That provides for a much better experience and connects pieces of the system that, before, might have been somewhat difficult for patients to navigate," he says.

Hall adds, "Put simply, bringing interventional radiologists into the clinical process advances our plan for expanding our patient outreach, which means we're no longer depending strictly on patients to come to us, but we're becoming more convenient for our patients."

Next Steps

- Consider leasing space in existing patient clinics, and embed IR and INR specialists with other clinicians to provide collaborative care.

- Establish a clinical foothold and then grow by demonstrating your value to other providers and to patients.
- Take the burden off of referring physicians' staffs by handling pre-authorization, scheduling, and other processes.

Join the Discussion

Want to join the discussion about how interventional radiologists and neuroradiologists can collaborate with physician partners at the point of care? Let us know your thoughts on Twitter at #imaging3.

Have a case study idea you'd like to share with the radiology community? Please submit your idea to <http://bit.ly/CaseStudyForm>.



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