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THE INFORMED PATIENT
By LAURA LANDRO



To Reduce Risks, Hospitals Enlist 'Proceduralists'

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Awaiting both kidney and liver transplants last year, Larry Pritchard suffered from fluid build-up so severe it sometimes leaked from the skin on his stomach. The condition required a procedure known as paracentesis to drain the fluid, but at the first hospital where he was treated, he says, emergency-room doctors didn't even know about the procedure and tried to seal the leaks with medical glue. After switching to Cedars-Sinai Medical Center in Los Angeles, he found something he hadn't heard of before: a dedicated Procedure Center, where doctors were expert at inserting a needle deep into the abdominal wall to drain fluid.

"The doctor knew exactly where to put that needle, and everyone at the procedure center was a pro at what they were doing," says the 62-year-old retired attorney. At Cedars-Sinai's center, experts performed the paracentesis procedure on Mr. Pritchard more than 60 times over six months, as frequently as three times a week, and inserted and removed dialyses catheters before his dual transplant last August. "They literally kept me alive," he says.



Bradley T. Rosen, of Cedars-Sinai Medical Center's Procedure Center, placing a dialysis catheter.

With a steady decline in the number of doctors trained to perform such skills-intensive medical procedures in recent years, Cedars and other large academic medical centers are looking for ways to fill the gap. They are creating special procedure services and new procedure-training programs for medical residents. Teams of doctors known as proceduralists are now available at some centers with special expertise in tunneling a catheter into a vein, slicing an incision in the neck for an airway, or plunging a needle into a patient's back for a spinal tap.

While not a medical specialty in its own right, procedural medicine is emerging as an important new role for physicians with the manual dexterity and steady nerves to perform risky procedures. And hospitals say they see reduced complication rates when services are performed by physicians who are very well-versed in the procedures.

Medical schools including Yale University and Northwestern University are using lifelike mannequins and virtual computer technology to teach clinical skills such as inserting chest tubes or performing rectal exams on a patient. Medical-specialty societies are providing skills training in their own continuing-education courses, and the New England Journal of Medicine last year began offering five- to eight-minute streaming videos of procedures that subscribers can download in a version compatible with hand-held digital devices, including arterial line placement, pelvic exams and male urethral catheterization.

Behind the efforts is a growing concern about patient safety and the risk of malpractice claims from botched procedures. "This is the scary underbelly of health care -- doing these procedures ad hoc without somebody really saying, 'Are you sure you know how to do this?' " says Larry Wellikson, chief executive of the Society of Hospital Medicine, which represents doctors whose sole responsibility is the care of hospitalized patients. Dr. Wellikson's group is developing procedure-training courses for its members.

Fewer Procedures

For decades, performing medical procedures was a standard part of medical-residency training for internists. But according to a survey of members of the American College of Physicians, internists on average perform 50% fewer procedures today than they did 18 years ago, in part because other specialists including hospitalists and radiologists do more procedures, and new technology such as ultrasound equipment has eliminated the need for some invasive procedures

An Expert Touch

Specialized procedure services can help cut risks from some of these medical procedures.

Procedure	Definition	Risks
Thoracentesis	Fluid removal via needle from space between chest wall and lining outside lungs.	Collapse of lung, bleeding infection, respiratory disease.
Paracentesis	Fluid removal via needle from abdominal cavity.	Puncture of bladder, bowel or blood vessel in the abdomen; spread cancer cells in abdominal cavity; shock.
Lumbar puncture/spinal tap	Collection of spinal fluid surrounding brain and spinal cord via needle.	Leak of cerebrospinal fluid, nerve injury, infection.
Central-line insertion	Intravenous catheter or IV placed into a large vein.	Injury to nearby arteries, lung; infection.
Arterial-line insertion	Small plastic tube placed in an artery, often on wrist.	Infection, bleeding, damage to surrounding tissues, blockage of artery.

or changed the way they are done. Cuts in insurance reimbursement have also made it less lucrative to do many common procedures.

Meanwhile, medical groups are also concluding that the traditional method of training residents -- known as "see one, do one, teach one" -- is dangerously inadequate. Eric Holmboe, senior vice

president of evaluation and quality research at the American Board of Internal Medicine, which certifies internists, says the method doesn't provide enough hands-on opportunities to practice skills, and relies on doctors who aren't necessarily expert themselves at doing procedures. Moreover, he adds, patients shouldn't be the subjects on which novice doctors practice their skills.

Last year, the ABIM eliminated some of the more-complicated procedures formerly required for certification -- such as spinal taps -- saying that internists should focus on a core group of five procedures they can master in everyday practice, such as drawing blood and performing PAP smears.

At Cedars-Sinai, demand for the 24 medical procedures performed at the procedure center has grown steadily in the decade since it was opened; in September, the hospital will open a new, \$1 million center that is double the size of the original and add a fifth proceduralist to the staff. At present, the four doctors who rotate through the proceduralist service each perform more than 2,000 procedures annually with the aid of one nurse practitioner and 14 nurses.

Lower Complication Rate

Bradley T. Rosen, assistant director of the Procedure Center, says it has helped lower the hospital's complication rate for medical procedures to less than 1%, compared with a national average of 2% to 5%. Wait times for patients are less than 24 hours, as opposed to sometimes two to three days for patients who have to wait for their own doctor.

The hospital is reimbursed at a low rate for many procedure services, and some doctors, such as surgeons, have to forgo some income from doing their own

procedures. But Dr. Rosen says the procedure center frees up surgeons to perform the more expensive procedures that are reimbursed at a higher rate.

Michael Lill, director of Cedars-Sinai's Blood and Marrow Transplant Program, says his group uses the Procedure Center for central-line placement and other procedures, such as using a needle to drain fluid from the lungs. "That's something most of us in internal medicine and surgery were trained to do as residents, and while it isn't an enormously complicated procedure, it can have severe complications," Dr. Lill says. "I haven't done one in 10 years, and they are doing six or seven a week." Moreover, the proceduralists use new ultrasound technology to guide the needle, "instead of the old-fashioned blind way we used to do it," Dr. Lill says.

Northwestern University in Chicago, meanwhile, started an advanced cardiac-life-support training program in 2003 using a simulated patient mannequin for residents to practice skills such as the insertion of breathing tubes and central lines. In a study published last month in the journal *Chest*, residents trained on the simulator showed significantly higher adherence to standards for performing the procedures, compared with traditionally trained residents. Northwestern is expanding rigorous training programs to cover all major medical procedures.

"If we follow the 'see one, do one, teach one' philosophy, we will just hand down our mistakes from one set of residents to the next," says Jeffrey Barsuk, assistant professor at Northwestern's Feinberg School of Medicine.

The University of Chicago created a procedure service staffed by a pulmonary critical-care faculty physician and a critical-care nurse available to perform or supervise residents performing procedures. Medical residents often elect to rotate through the service, says Vineet Arora, associate program director of Internal Medicine Residency.

Practicing on Mannequins

Boston's Beth Israel Deaconess Medical Center, affiliated with the Harvard Medical School, also uses a simulation center to train residents on mannequins.

Joseph Li, who runs a group of 24 hospitalists at Beth Israel Deaconess who staff a full-time procedure service, still shudders when he remembers how he was taught to remove fluid from the lungs. "I vividly remember thinking I've never done this, and it's almost like a dirty little secret that this patient doesn't know that," Dr. Li says. "We fumbled our way through it with no issues, but it just highlighted for me what an awful way it was to teach."

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