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A moment's pause: A concept co-created by a surgeon is saving lives

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Daniel Hall has shimmied gallbladders out of half-inch-wide laparoscopic incisions and performed life-saving surgeries at the VA Pittsburgh Healthcare System since 2007.

But early in his career, he realized it's the 2 a.m. phone calls that motivate him most.

"It's counseling distressed family members and patients, and figuring out when to keep the scalpel in the drawer," he said. "To go home having done a really good job of clarifying (patient) goals, and help people to understand what really matters to them, and matters to them in the setting of a surgical crisis, that's the most rewarding thing that we do."

His desire to align surgical options with patient goals led to a stack of grant attempts, none of which launched a research career the way he'd hoped, until he learned about the work of VA colleague and vascular surgeon Jason Johanning in Omaha.

Now, together, the surgeons have pioneered and verified the "Surgical Pause"—a scientific way of knowing when to keep the scalpel in the drawer—so effective, it reduced post-operative mortality among the "frail" from 25% to 8%, and is changing surgical practice at over 50 VA hospitals, and several more civilian ones, across the country and the world, including the University of Pittsburgh Medical Center.

"The Surgical Pause is a game-changer for the care of our older patients ," said Benjamin Reynolds, UPMC chief advanced practice officer and clinical assistant professor of surgery at the University of Pittsburgh Medical School.

"Older patients are particularly vulnerable. We know that frailty can increase the risk of postoperative complications and mortality by up to four times. By using the Surgical Pause, we can tailor their care, reduce their risk of death, and give them the best opportunity for a successful outcome."

While "frailty" is more likely among older people, its definition doesn't

hinge on age but rather "physiologic reserve," or "how much gas is left in the tank," as Hall described.

"You can have a frail person who is younger, 60, compared to a robust person who is older, say 80," Hall said. "The 80-year-old may be able to withstand the stress—they have enough physiologic reserve to manage the stress of a large colon operation, let's say—where the younger, frailer person would not."

To identify frailty, Hall, Johanning and colleagues borrowed a tool first used during nursing home intake assessments, the Risk Analysis Index.

By asking 14 patient-focused questions in under 60 seconds, a frailty score is generated.

Because the RAI had never been applied to surgical patients before, Hall, who led the *JAMA Surgery*-published study in 2017, worked to learn whether a patient's level of frailty could predict surgical outcomes.

Per his data, low-risk surgeries in non-frail patients result in a 0.22% mortality rate 30 days after surgery, while very frail patients' mortality risk skyrockets to 10.34%.

For high-risk surgeries, 1.89% of non-frail patients die within 30 days after surgery compared to 22.26% of very frail patients.

The results created a mantra for Hall and his team: "There is no such thing as a low-risk surgery for frail patients," which is where the pause comes in.

When a patient is flagged as high-risk—or frail—a lengthier surgeon-patient conversation follows, where the very real risks are considered through the lens of the patient's goals, issues such as how dependent they

wish to be on others and for how long, which risks they're willing to accept, and more.

Through an interdisciplinary review of that care plan at the Omaha VA Medical Center, post-surgical mortality among the frail decreased from 25% to 8%, but Johanning needed a research partner to reproduce his results.

"They needed to validate this, to make sure it worked outside of this one facility," said Mark Wilson, VA national director of surgery and Pittsburgh native.

"They realized that often the clinicians had not taken time to understand what the patient goals were. They presumed patients wanted surgery done because they were in the surgery clinic. This lets them look for better opportunities to better understand the patient population."

The replication in Pittsburgh was overseen by Hall, whose patients heard, and hear, something like this.

"Mr. Jones, I'm so glad you're here today. I want to talk about your hernia, but I want to start by saying that no matter what we do in regards to this hernia, your life is probably never going to be the same," Hall said, as he would to a patient. "That headline is very different from 'You have a problem and I can fix it.'"

While the RAI takes only 60 seconds, and is performed ahead of meeting with a surgeon so they can prepare for a potential pause, conversations about risks, benefits and patient goals might extend over multiple visits or multiple care providers, Hall said.

That pause, when applied at VA Pittsburgh, created more data about its benefits.

One in five patients declined surgery in favor of non-operative management strategies. And in a process called "prehabilitation," exercise training for just three weeks prior to surgery created clinically significant improvements in endurance, gait speed and respiratory pressures, which are likely to speed recovery and improve outcomes, Hall said, while presenting the Surgical Pause at the 2021 Veterans Health Administration Innovation Experience.

The rest of the evidence is human, not statistical.

Many patients feel fear early in the pause, Hall reports, as the reality of future abilities and health become clear. But in the hands of capable clinicians, he says, those feelings turn to gratitude, as the patient's priorities are honored, and it becomes clear that even a non-surgical choice will still be accompanied by medical and emotional support.

The pause's impact is only emphasized by the knowledge that Hall nearly abandoned research altogether.

After so many traction-less attempts, he told a small group of friends and colleagues that he had one more try left in him. That final opportunity turned out to be the Surgical Pause, which was honored in May as a John M. Eisenberg Patient Safety and Quality Award in the National-Level Innovation in Patient Safety and Quality category, as issued by The Joint Commission, an organization that oversees safety practices at medical facilities around the world.

Now, "the next 15 to 20 years seem pretty obvious" for Hall as he turns 2 a.m. phone calls into data that can change surgical practice.

Oh, and that life-saving, award-winning pause is free for any health system or private health care provider to use.

"Bottom line, it's the right thing to do," Hall said.

"I got into medicine to help people. So did many of the people I practice with. Surgery, in particular, has a very unique and intimate bond between the surgeon and the patient. This happens in other disciplines, but not in quite the same way. I can end up really hurting people. Both for patients and their surgeons, this is a way to minimize that, and that is always the right thing to do."

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