High-Tech Healing In A Simple Patch, A Weill Cornell Medicine Innovation

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Surgical site infections (SSIs) and post-operative wound complications are among the most prevalent and costly challenges in modern healthcare. Traditional methods of wound care can be difficult for patients to manage and insufficient to prevent complications. Recognizing the need for a better solution, a multidisciplinary team of surgeons and engineers at Weill Cornell Medicine developed an elegant, accessible approach to negative pressure wound therapy (NPWT): the NPseal.

NPseal is a single-use, sterile dressing that applies continuous, preset suction (negative pressure) directly to closed surgical incisions, without batteries, tubes, or programming. It helps reduce fluid buildup, tension, and bacterial contamination, improving healing while minimizing patient burden and healthcare costs. The device includes a small hand pump with a built-in pressure indicator, a foam pad that absorbs fluid from the wound, and a breathable polyurethane film to promote evaporation and reduce skin irritation. Altogether, it delivers sophisticated wound protection in a remarkably simple, self-contained patch.

In comparison to conventional NPWT devices, which often require pumps, tubing, complex instructions, and cost thousands, NPseal's low cost, ease of use, and portability make it a breakthrough in patient access and care. The product has been used across multiple surgical specialties and has gained strong traction in addressing surgical site infections, the second most common healthcare-associated infection in the U.S. and Europe.

For a patient who underwent an abdominal perineal resection (APR) — one of the most invasive abdominal surgeries — the NPseal made a significant difference in their recovery.

"My overall quality of life after surgery was enhanced by the NPseal," the patient shared. "I was able to move around without worrying about my incisions reopening. I was able to just focus on the healing that needed to happen inside my body."

Participating in a clinical trial, the patient had NPseal on some of their incisions and traditional dressings on others. The contrast was clear:

"With traditional dressings, I found it difficult to ensure they stayed on while showering or moving around. In one case, the incision reopened and made the wound larger and more painful. But with the NPseal, I didn't even have to look at the wounds until they were healed. The scarring was smaller, too. I wish I had all my incisions covered with NPseal."

The innovation was initially developed under the Weill Cornell/NYP MINT Program and transitioned into a Weill Cornell spin-out startup, Guard Medical, Inc., founded in 2018. The Cornell Center for Technology Licensing (CTL) at Weill Cornell played a pivotal role throughout the commercialization journey:

- Collaborated with the inventors to protect intellectual property and know-how;
- Built the business relationship with the startup's founder and CEO;
- Licensed the technology to Guard Medical;
- Continued supporting the company as it advanced toward regulatory, clinical, and reimbursement milestones.

With CTL's support, Guard Medical raised $16 million in financing, obtained multiple FDA 510(k) clearances starting in 2020, and launched the product in multiple markets.

In 2025, Guard Medical was acquired by a global medical device company, further advancing NPseal's path toward broad adoption and international impact.

This story is a testament to the power of university tech transfer, clinician-led innovation, and patient-centered design. NPseal combines advanced engineering, translational research, and licensing expertise to deliver a straightforward solution with global potential. One that enables safer recoveries, reduces complications, and helps patients focus on their healing.

This story was originally published in 2026.