

Medical Devices Out Of Nebraska Make For Better Outcomes And Happier, Healthier Radiologists

University of Nebraska Medical Center



The innovations of Radux Devices—a University of Nebraska Medical Center startup—bring to mind an old joke:

Patient: "It hurts when I do this."

Doctor: "Then don't do that."

How that dovetails with cutting technology speaks to the nature of innovation. Greg Gordon, MD, an interventional radiologist, suffered every time he did his job. Discomfort, chronic pain, debilitating back injuries and even dangerous radiation exposure are all part of an interventional radiologist's existence. Gordon couldn't just stop.

But the pain could.

Interventional radiology uses x-rays to help guide equipment like catheters and stents, or monitor blood flow and find blocked arteries.

Fluoroscopic procedures are flooded with radiation, and that adds up over time, so physicians must limit their exposure. They protect themselves with 15- to 30-pound lead-lined garments, which can cause musculoskeletal injuries. Physicians stand in ways that keep them as far removed from the x-ray field as possible. That usually means leaning in odd and uncomfortable angles, and using less-than-preferred surgical techniques.

The standard in cardiac fluoroscopic procedures is to access the patient's aorta through the radial artery in the left arm, which is easier because that side has one less curve to navigate. A right-handed doctor using left-arm access usually requires leaning into the radiation field. Many avoid the discomfort in favor of using the right arm or the leg's femoral artery. Femoral access may be easy, but carries high risk of complication.

Gordon solved these problems, and the pain, with two devices he created while at the University of Nebraska Medical Center in 2013. He now practices at United Vascular Center in Omaha, Nebraska.

The "Steradian Shield" is a sterile, moveable device that can be placed virtually anywhere to block radiation in the physician's workspace. The other device, "StandTall," helps manage and direct the catheters used during fluoroscopic procedures. Such improvements have eliminated all the troubles associated with left-arm access. The benefits just cascade from there. Now physicians can perform procedures faster and more efficiently. Use of the preferred access sites leads to better outcomes, less complications and lower costs. A radial access procedure, on average, costs \$1,000 less than a femoral access procedure.

UNMC's tech transfer arm, UNeMed, licensed the devices' IP to Radux Devices, the startup Gordon founded. They are available for purchase on the open market. The StandTall device is in more than 120 hospitals, and continues to grow. It is available through TZ Medical. The first generation of the Shield is also in several hospitals.

UNeMed helped create and manage the initial IP, invested in the formation of the company with a convertible note, and introduced the founder to angel investment groups and management talent (such as board members). UNeMed also provided office space in the early days, and created press releases and other publicity materials. UNeMed's Director of IP, Jason Nickla, spent a lot of time with Gordon to help craft the IP, and encouraged Gordon to develop the startup.

The response from physicians who get their hands on these devices has been overwhelmingly positive. Radux has given them far more than an old punchline.

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