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Cardiologist creates a special bra to help heart patients

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Dr. Ashley Simmons had heard at least 10 patients complain about the echocardiography stress test on the treadmill, and then a friend echoed their sentiment during a birthday party. The common theme: it felt humiliating.

During the stress test, women wear a hospital gown sans bra and work their way up to a run. The test can be especially uncomfortable for breast cancer patients or those experiencing hormonal changes because their breasts feel tender, Simmons said. For others, it's a modesty issue. Women typically can't wear a bra for several reasons. If the bra contains any metal, such as clasps, it can interfere with the imaging and introduce artifacts. Doctors also need to access the chest area immediately after peak stress to determine whether blood flow issues to the heart exist.

"A lot of women want to get the test done as quickly as possible and may not be exercising as long as we'd like to see them, since we base mortality data off of duration of exercise," she said.

So Simmons, who's a cardiologist at The University of Kansas Health System, decided to find a solution. Now, she's the founder and CEO of CardioBra LLC, which developed a sports bra outfitted with an EKG lead system. It includes a Velcro-like strap for easy and fast access to the chest after reaching the target heart rate.

To develop the bra, she leveraged KU Health System's Innovation Central initiative, which encourages employees to submit novel and disruptive ideas for improving aspects such as the patient experience. KU Health licenses the intellectual property to the company and is a minority owner.

"(The initiative has) been one of the levers we use to build a culture of innovation," said Chris Wilson, vice president of system integration and innovation at KU Health.

Innovation Central creates the infrastructure to transform an idea into a reality, including meetings with stakeholders, assistance with prototyping and commercializing a product. The CardioBra is patent-pending, and KU Health plans to take it to market.

"It's been a huge learning experience for me," Simmons said, who learned how to navigate aspects such as finding the right manufacturing partners. "It's been fun to learn the business aspect of medicine too, which I have never had any formal training in."

Wilson said CardioBra is the first idea that's gone through the commercialization process via Innovation Central. It's a "picture-perfect effort" that not only meets the needs of patients but enhances the culture of innovation, he said.

Simmons' vision for the bra is to eventually be an option worldwide for any woman undergoing a stress test.

"I don't want any woman to hesitate to get the study done because of embarrassment or comfort issues," she said.





Mark McDonald Photography

Dr. Ashley Simmons, a cardiologist at The University of Kansas Health System, shows off the CardioBra, which is equipped with an EKG system and can be used during stress tests.

