



Introducing 3D Imaging to the Operating Room

A case study of the impact the Faxitron[®] CT system has on intraoperative specimen radiography

Having access to immediate, detailed feedback about the composition of excised specimens in the operating room can be a gamechanger for surgeons and patients alike. Matthew Wakefield, MD, explains how transitioning from 2D to 3D specimen radiography with the Faxitron[®] CT specimen radiography system transformed his intraoperative care.



Matthew Wakefield, MD
Cone Health Breast Cancer Program | Greensboro, NC

The 3D Advantage

Dr. Wakefield, a surgeon and the Medical Director of the Cone Health Breast Cancer Program in Greensboro, NC, had been seeking a 3D imaging system for quite a while to replace the 2D system in his operating room, when he was introduced to the Faxitron CT system.

“The 2D images that we captured in the operating room were not all that worthwhile for things like margin assessment and trying to prevent a second surgery. All they really did for us was confirm that the clip and the [radioactive] seed were present,” said Dr. Wakefield. “With the 2D system, you’re only taking one picture, or you can flip it and maybe take two pictures. You don’t get a clear idea three-dimensionally where your calcifications are relative to a margin, making it difficult to determine where you might need to take more out.”

With the Faxitron CT system, that all changed. The new system scans 360 degrees and reconstructs the whole excised specimen volume in 0.1mm slices with GPU-accelerated real-time reconstruction.

“The beauty of the 3D imaging system is that you get the entire 3D image where you can manipulate the image to flip the whole specimen around, and it gives you the volume that you removed as well. Plus, you get three other views where you can scroll through the entire specimen in different orientations to figure out where the lesions or the calcifications or the localizing device is located.”

“I don’t think there is any way I could go back to using a 2D system. It doesn’t give you the information that’s best, that you need to make decisions for your patient while you’re in the operating room.”

CT is designed to help achieve better surgical outcomes and potentially improve intraoperative specimen margin assessment by providing a high-resolution 3D reconstruction of the specimen in all the X, Y and Z-Axes.

“On a 2D image, a lesion or calcification may appear to be right in middle of a specimen, but if you take a 3D image, in actuality it may be right at the anterior margin,” said Dr. Wakefield. “[The Faxitron CT system] has made it much simpler to say, ‘I’m close to my lateral margin, so I’m going to take more of that.’ You get immediate feedback in the operating room.”

For more information, contact your Hologic representative

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Faxitron[®] CT
Specimen Radiography System

There's No Going Back

Now that Dr. Wakefield and his colleagues have integrated the Faxitron CT system into their operating room and experienced the benefits of 3D imaging, they have expressed that they would not be willing to go back to 2D imaging.

"It's kind of like if you drive an older car, and it doesn't have a backup camera. Now that I drive a car with a backup camera in it, I can't believe I ever drove one without it, because it's so much better and safer," said Dr. Wakefield. "I don't think there is any way I could go back to using a 2D system. It doesn't give you the information that's best, that you need to make decisions for your patient while you're in the operating room."

“The Faxitron CT system exponentially improves your ability to make decisions in the operating room that are better for your patient, to give them a better operation and to avoid future operations.”

Part of Dr. Wakefield's commitment to 3D CT imaging in the OR has to do with its ability to potentially improve intraoperative specimen margin assessment.

"[The Faxitron CT system] exponentially improves your ability to make decisions in the operating room that are better for your patient, to give them a better operation and to

avoid future operations," said Dr. Wakefield. "And that's not just important for the patient psychologically or financially for the entire system, it's also important for the patient's cancer and their medical care."

A significant component of Dr. Wakefield's efforts to avoid second surgeries is reducing his facility's positive margin rate. Over the years, the Cone Health Breast Cancer Program has dropped its positive margin rate to an enviable level, and preliminary data suggests the Faxitron CT system may be helping.

Enhanced Decision Making

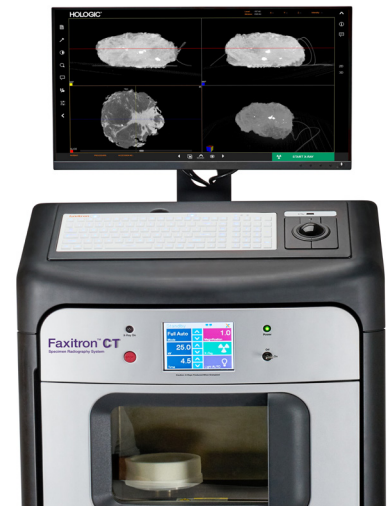
Thanks to the Faxitron CT system, Dr. Wakefield has been able to make more informed decisions about his patients' care.

"The way we do surgery – and breast surgery in particular – these days, many surgeons do their own imaging. This is the next logical step in the operating room – to be able to view the specimen to get some immediate feedback on what you need to do further for that patient."

This has shifted the paradigm of intraoperative imaging analysis for Dr. Wakefield, allowing him to take more ownership of decision making in order to benefit his patients.

"We've taken the radiologist out of the equation, for the most part with respect to margin assessment. Now, the decision making is entirely with you," said Dr. Wakefield.

"There's an advantage in being able to see the images yourself and then make decisions while you're operating on someone. I think it's better for the patient, because a radiologist just sees the images; they're not there in the operating room with you. As a surgeon, you can look at the images, correlate it to the actual patient and make these decisions in the operating room based upon immediate feedback."



And for those facilities that rely upon radioactive seeds for localization, Dr. Wakefield has found it particularly beneficial that he can still generate a 2D image to share with his radiologist. This allows his facility to maintain the chain of custody for a radioactive seed without burdening their radiologist with the larger volume of data generated with the 3D CT image.

Ultimately, Dr. Wakefield was thrilled with his decision to transition to the Faxitron CT system and believes it will be key to his ongoing efforts to help improve the patient experience, potentially reduce his facility's positive margin rate and minimize second surgeries.

"I've been very surprised and happy with the quality of the images that show up," said Dr. Wakefield. "It works every time, and it works reliably. It is very easy to use and very easy to set up, but we're getting a lot more information and better images by using this system."