Improve the Lumpectomy Imaging Experience

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The Science of Sure

Exploring the Benefits of Faxitron® Trident® HD Radiography System in the Operating Room

An efficient and effective workflow is paramount to a successful lumpectomy surgery. It not only reduces how long a procedure takes, but the recovery of the patient as well.

A study, *Workflow efficiency analysis for Faxitron® Trident® HD system in Spain*, that was conducted in February 2022, quantitatively assessed the advantages of utilizing the Hologic specimen radiography system compared to traditional systems that are located outside the operating room.

When a breast surgeon performs a lumpectomy, the traditional practice is to package the specimen and have a runner deliver it to radiology for imaging. From there, the radiologist evaluates if the marker and tissue margin are visible. They then report back to the surgeon on whether the complete mass has been removed – or if they'll need to continue the surgery. All of this takes time within the breast surgical procedure.

In the time that the surgeon is packaging the specimen and it travels to radiology for imaging process, the surgery has come to a pause for an unknown duration of an inefficient process.

In the *Workflow efficiency analysis for Faxitron Trident HD system in Spain* study, researchers gathered data about the workflow impact of utilizing the specimen radiography system, which is placed inside the operating room and trained a nurse with surgery experience on using the system. The study examined the work efficiencies of 55 lumpectomy procedures utilizing this system without a second ultrasound specimen imaging. When ultrasound was utilized there was no time saved in the operating room.

Surgery Observations

Reina Sofía Hospital	**21 observations**	**18 observations**
Fuenlabrada Hospital	**16 observations**	**10 observations**

Without Trident – **With Trident –**

From the chart on the right, the specialists involved in the study had significant experience in their position and can speak to the workflow efficiency of lumpectomy procedures. The average years of experience for the specialists was 12.1 years, with the max experience being 20 years and the fewest being three years. This experience enables specialists to speak on the efficiencies and inefficiencies of lumpectomy procedure workflow.

Study Specialist Information

Location	Còrdoba	Madrid
Specialists interviewed	• 2 radiologist • 1 surgeon • 1 anesthesiologist • 1 runner	• 1 radiologist • 1 X-Ray technician • 1 surgeon • 1 anesthesiologist • 1 case manager • 1 runner
# Yearly conservative breast interventions	540	240

Reina Sofía – **Fuenlabrada –**

In interviews conducted with specialists, they identified lumpectomy procedure times as an area for improvement—and noted that the Faxitron Trident HD system helped with reducing surgery times. Hospitals and breast centers can explore ways that their experienced teams can save time both before and during surgeries, including how new techniques and technology can play a role in a more efficient and timely work process. Lumpectomies could be more efficient by removing delays in imaging, such as running specimen to radiology or relying on already time-constrained radiologists to examine the tissue.

Trident HD generates sharp, highly detailed images to assist surgeons with sample verification in the operating room. By utilizing this technology, there's no need to transport specimens to radiology for imaging, risking possible sample loss and increasing procedure length. Instead, this easy-to-use system can be maneuvered and operated by a nurse or technician within proximity of the surgery.

Improve Workflow Efficiency

When conventional x-ray is used during a lumpectomy, the surgeon is waiting for results in the OR and uncertain about whether they removed all of the lesion. In the study, *Workflow efficiency analysis for Faxitron Trident HD system in Spain*, results revealed that surgeons were no longer waiting over 20 minutes for results when using the Trident HD system and were able to complete surgeries that did not require an ultrasound in a timelier manner. Additionally, surgeons felt there was more control over the specimen since it reduced opportunities for human error in transportation.

While there is variability between hospitals for surgical guidelines and procedures, Spanish Breast guidelines, recommendations, consensus and literature specify that the timing to have the radiology report after the surgical specimen leaves the operating room to be within 20 minutes.[1] However, in many instances this is not the case.

The study focused on two regional facilities, Reina Sofía Hospital, located in Córdoba, Spain, and Fuenlabrada Hospital, in Madrid, and observed 27 surgeries without the Trident HD system and 28 surgeries with the radiography system. Those surgeries that did not require an ultrasound of the specimen saw an overall improvement to the median time spent waiting for imaging when using the Trident HD system.

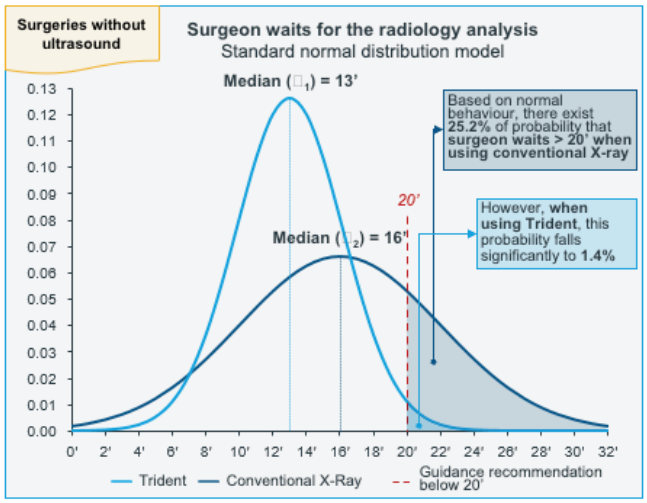
At Reina Sofía Hospital, procedures were reduced by three minutes on average, which could result in 852 minutes each year saved at the facility – enabling procedures for up to 11 more patients annually. Without Trident system, 25.2% of surgeries waited longer than the standard imaging time of 20 minutes for results. With the Trident system, no procedures extended beyond the 20-minute wait time, taking a maximum of 18 minutes.

For Reina Sofía Hospital, researchers estimated that amortization of the equipment would be less than two years based on the additional patients.

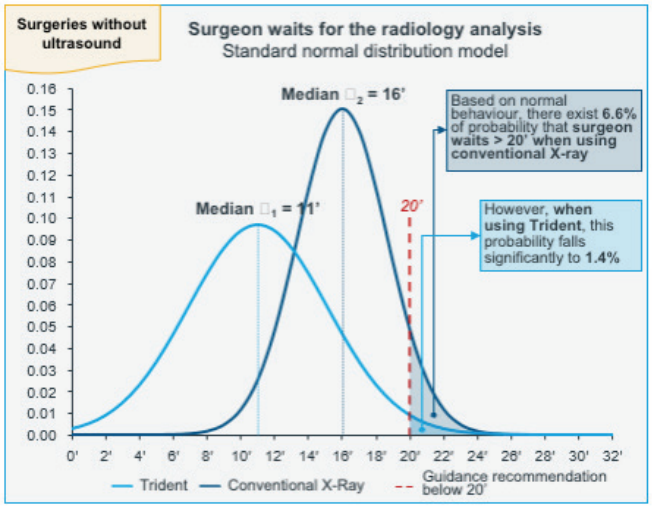
At Fuenlabrada Hospital, procedures without ultrasounds were reduced by five minutes on average, which is estimated to save approximately 255 minutes annually at the facility – this could result in an additional three patient procedures per year. Without the Trident system, there was a 6.6% probability of surgeons waiting over 20 minutes for imaging results, however, when the radiography system was implemented, that statistic fell to 1.4%.

For Fuenlabrada Hospital, researchers estimated that with the additional patients per year, the system would amortize in four years.

Reina Sofía Hospital Findings



Fuenlabrada Hospital Findings



Eliminate Imaging Delays

During interviews with the clinical specialists, many identified the time saved from running specimen to radiology and conducting imaging as a key benefit of Hologic's Faxitron Trident HD system.

The study showed that the system can save time by having a nurse or technician in the procedure room imaging the specimen. On first use, nurses were able to position and execute the imaging process in 10 minutes, which was reduced to six minutes on further usage at Reina Sofía. At Fuenlabrada, it was observed that the time for positioning could be reduced by two minutes with additional training.

The Faxitron Trident HD radiography system is fast to learn and easy to use, which in turn helps surgeons take care of patients. The control panel and software interface have a robust tool set including annotation, measurement, magnification, zoom, and more. The Trident system can instantly verify results for reduced procedure time for an improved workflow, removing the need to wait 20 minutes for results.[2]

In the years ahead, predictions indicate that there will be fewer surgeons and radiologists as more cancers are detected due to aging populations and improving technologies. Workflow efficiencies will be vital to health centers coping with these issues. Trident can help centers improve workflow as an easy-to-use system that reduces the risk of specimens being contaminated or lost in transport.

[1]Manual of Clinical Practice in Senology. 2019. 4th edition. Revised and enlarged. Prof Philip M.P. Poortmans.

[2]July 2016 Kadence International Study

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