

## Spanish hospital proves benefits of 3D mammography in routine use

### Due diligence at La Ribera Hospital provides model for winning administrator approval

*On the east coast of Spain, La Ribera Hospital leverages economic and human resources for the patient – not the other way around. It is not surprising, therefore, that this modern hospital, dedicated to the well-being of patients, was among the first in Spain to adopt 3D mammography. Three-dimensional imaging, achieved through multiple low-dose x-ray exposures, lifts lesions from behind tissues that might hide them.*

*Yet this technology was only adopted at La Ribera after a careful evaluation of its clinical benefit in everyday practice. The due diligence, and corporate partnership that made it possible, maps a route for healthcare providers seeking to win administrator approval to expand breast imaging services to include 3D mammography, just as the experience at La Ribera Hospital underscores the benefits of 3D mammography in routine practice.*



Dr. Julia Camps-Herrero, Head of Radiology, in La Ribera Hospital in Valencia, Spain

The management at La Ribera Hospital understood from the beginning that women's health deserves the best technology. A specialized Breast Unit began operating just days after the hospital opened in January 1999. In the years that followed, La Ribera became a reference center in Spain for breast cancer localization techniques, using ultrasound and radiotracers. (1,2) The hospital also integrated breast MRI in its diagnostic workup of women suspected of breast cancer complemented by MR-guided biopsy. (3)

Until 2012, however, this hospital in Valencia, Spain, had not offered 3D mammography. While the benefits of 3D mammo had been widely discussed at clinical meetings and in multiple peer-reviewed papers, La Ribera administrators were unconvinced that benefits achieved in clinical trials would translate into advantages in its everyday use at this seaside hospital.

Working with Hologic, Dr. Julia Camps Herrero, head of radiology, and colleagues came up with a way to put 3D mammography to the test.

The company and hospital agreed to a no-cost six-month 3D mammography license for the use of Hologic's Selenia Dimensions mammography system, providing the staff at La Ribera Hospital with the chance to see whether and, if so, how 3D mammography might influence the diagnosis and treatment of women. When the license ran out, the hospital would decide whether to buy the technology.

In that half year, Dr. Camps and colleagues gathered data demonstrating that 3D mammography provides greater diagnostic confidence, provides patient benefits, increases efficiency and lowers costs through reduced call backs. With these initial results in hand, administrators moved forward with plans to purchase 3D mammography, while the hospital continued using the Hologic device.

In the following months, Dr. Camps and colleagues gathered data that further verified their initial conclusions and confirmed improved care with quantifiable results.

The in-house research began in February 2012. From then through June of that year, 1276 women were evaluated with 3D mammography. In just those patients, 3D mammo allowed the identification of nine cancers that had eluded detection with 2D digital mammography alone.

Overall, Dr. Camps and colleagues concluded that the 3D technique provided additional diagnostic information in more than a third of cases – 478 of 1276 patients (37.4%). It helped radiologists identify spiculations and post-surgical changes; extend microcalcifications; discover nodules associated with microcalcifications; and better determine the margins of lesions, she said.

The ability of Selenia Dimensions with 3D mammography to spot early signs of the disease is underscored by statistics gathered from February 2012 to July 2013, when 60% of the cancers found on 3D mammography were smaller than 10 mm, according to Dr. Camps. This early detection suggests lower treatment costs and better patient outcomes, she

said, particularly in cases when 3D mammo uncovered invasive cancers, which pose an increased threat to the patient.

“Although many other factors play a role in patient outcomes, you can assume that the smaller the cancers, the better the patient’s welfare and the less aggressive the treatment in terms of breast-conserving surgery and also the avoidance of chemotherapy,” she said. “The increased cancer detection and 60% of them being less than one centimeter – that is amazing. And this was done without an increase in the false positive rate.”

Gains came at the cost of an additional one to two minutes in reading time for each patient. “But you win the time back because you don’t have to do additional views or additional tests,” Dr. Camps said.

Data analysis showed that the use of 3D mammography at La Ribera Hospital reduced the number of call backs for additional views in 10.4% of cases. It also cut the number of follow-up ultrasound exams by 7%.

Dr. Camps and her staff stopped gathering detailed information about the utility of 3D mammography after 11 months. They did, however, continue gathering information about how 3D mammo impacted the discovery of cancer.

From February 2012 until July 2014, 3D mammography uncovered 31 cancers not seen initially using 2D mammography alone. These 31 cases were found in 8500 women. This translates into 3.6 additional cancers per 1000 patients.

“Needless to say, these cancers would have been diagnosed possibly much later on,” Dr. Camps said.

Attesting to increased efficiency and lower costs, from 2009 to 2013, the number of call backs dropped by more than two thirds from 153 to 49. Dr. Camps notes that this is most important as a matter of patient well-being.

“The biggest issue is the anxiety of the patient, because when you recall a patient, she doesn’t think that you didn’t see very well the margin of the lesion or that you just want to see better to rule out



La Ribera Hospital in Valencia, one of the first in the community of Valencia to adopt 3D Mammography



Dr. Camps (second from left) with mammography staff.

a lesion,” she said. “She just thinks she has cancer.”

Particularly relevant is that the statistics were gathered during everyday practice, making them directly applicable to the routine use of 3D mammography, according to Dr. Camps.

“We first did the 2D reading and then straightaway we did the 3D reading, so we had the information from the 2D and we built that into the 3D,” she said. “This is the way we do our readings every day now that 3D mammography is routinely available.”

Before the introduction of 3D mammography at La Ribera Hospital, only one such unit was operating in the community of Valencia. Several manufacturers of breast tomosynthesis were knocking on Dr. Camps’ door to make their product the second. As a reference hospital and nationally recognized provider of women’s health services, La Ribera Hospital would confer instant credibility on the manufacturer. The choice of which machine would be installed, however, was never in doubt.

“I knew it would be a Hologic machine,” Dr. Camps said. “I knew there was a difference between

brands (in 2D digital mammography). I knew that from all the years I had been working in mammography and looking at mammograms. I told my administrators that this (Selenia Dimensions) is going to be the machine of the future. And that is what has happened.”

Today La Ribera Hospital offers one of the most comprehensive women’s health programs in the world, featuring state-of-the-art technology. The Breast Unit includes a Hologic Selenia Dimensions with 3D mammography; Hologic prone table and Hologic ATEC- Sapphire for vacuum-assisted biopsies; high-performance ultrasound unit; and high-field MR scanner with a 7-channel breast coil.

“All this technology allows us to gather the maximum amount of information so that we make the right decisions,” said Dr. Camps, who notes that the need for re-intervention at La Ribera Hospital has dropped in recent years by 50%.

“We explain to our patients that it is very important for us to know the exact location and extent of their tumors so we can avoid going back to the OR,” she said. “So we spend more money on

technology, but we save money because we’re not doing so much surgery.”

La Ribera Hospital plans to expand its technological reach further with the addition of Hologic’s C-View and upright 3D-guided biopsy add-on. C-View software compiles the 3D data from a single set of 3D mammography exposures and generates a 2D image, streamlining the screening process and eliminating the patient radiation dose that would come from a separate 2D digital mammogram. Hologic’s upright 3D-guided biopsy add-on will make biopsies easier and faster.

“Our patients and radiologists will appreciate that. And, the addition of these leading-edge products will enhance the Hospital’s already strong reputation for providing the very best technology available for its patients.” Dr. Camps said.

## ADDITIONAL READINGS

1. Camps, J., Sentís, M., Ricart, V., Martínez, C., Lloret, M. T., Torregrosa, A., et al. [Utility of breast MRI in the local staging of breast cancer: impact on change in therapeutic approach]. *Revista De Senología Y Patología Mamaria*, 2007; 20(2): : 53–66.
2. Ricart Selma, V., González Noguera, P. J., Camps Herrero, J., Martínez Rubio, C., Lloret Martí, M. T., & Torregrosa Andrés, A. (). [US-guided localization of non-palpable breast cancer and sentinel node using 99mTechnetium-albumin colloid]. *Radiología*, 2007; 49(5): 329–334.
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