



# The right PET/CT for a diverse portfolio

Staying at the forefront of medical technology aligns with Hospital Clínic de Barcelona's mission as a leading university hospital committed to innovation. Obtaining a PET/CT with 178-picoseconds time of flight helps to keep the hospital on target.

By Reinaldo Lopes | Data courtesy of Hospital Clínic de Barcelona, Spain

**D**uring the past five years, Hospital Clínic de Barcelona, a major university hospital located in the Catalan capital in Spain, has seen a 10% increase in its use of PET/CT. "For us, it is a big jump. This change is, of course, related to our increased aging population, but also to the growing importance of PET/CT for oncology and for clinical trials in several fields

of medicine," says Dr. David Fuster, head of the hospital's Clínic Nuclear Medicine Service. To cope with the increasing demand for diagnostics and therapy, Fuster and his colleagues acquired a Biograph Vision.X PET/CT scanner in October 2024.

"We knew this newer model was going to offer us exceptional image quality, sensitivity, and fast scanning

times, all of which translate into accurate diagnoses and improved patient outcomes," explains biomedical engineer Dr. Aida Niñerola, Hospital Clínic's lead expert in PET/CT. "These are essential goals for quicker treatment decisions. Also, staying at the forefront of medical technology aligns with our mission as a leading university hospital committed to innovation."



*“Continuous system-performance monitoring also helps identify issues before they can have an impact on our patients.”*

Aida Niñerola, MD, Hospital Clínic de Barcelona

### **Twin goals: patient care and research**

Hospital Clínic de Barcelona’s nuclear medicine division has been pursuing its twin goals of patient care and medical research since its inception 50 years ago within the University of Barcelona. “We provide the entire range of medical services, from primary care to high-complexity therapies. Hospital Clínic is among the top 25 hospitals in scientific output worldwide, thanks to its synergistic relationship with the University of Barcelona,” says Dr. Fuster.

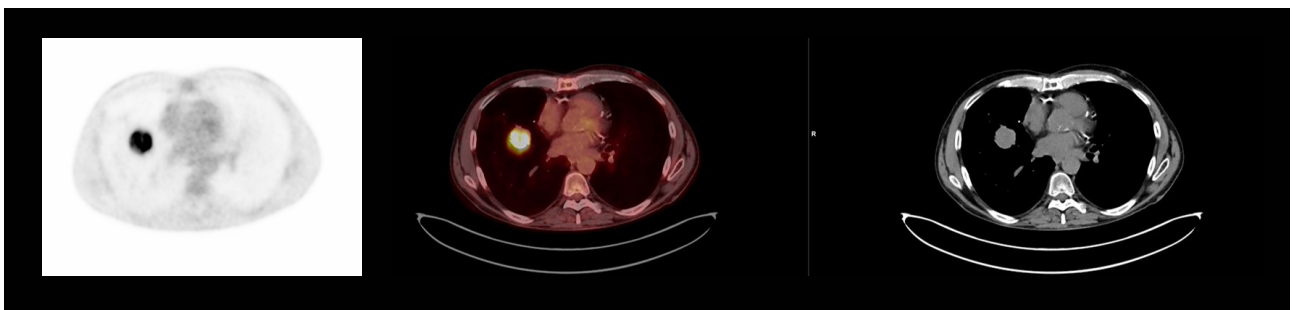
Not only medical students, but also those who are majoring in nursing, pharmacy, psychology, and biomedical engineering spend time here as part of their training. “We have medical professionals, researchers, and engineers working together all the

time. This kind of interdisciplinarity boosts our ability to address complex cases through innovation and evidence-based practices,” adds Niñerola. Their collaboration with clinical trials in many different fields also helps to bring new technologies into Spain’s public health system, she says.

Fuster explains that their latest PET/CT device is being used mostly for oncological diagnostics, therapy, and clinical trials. “Another relevant field is the evaluation of neurological disorders, especially Alzheimer’s disease and other forms of dementia. The sensitivity and precision afforded by this scanner is also helping us to evaluate the effects of myocardial conditions as well as assist in researching inflammation and infectious diseases, whose importance has been growing in the past few years.”

### **Improved patient flow**

Such a diverse portfolio means heavy demand for PET/CT exams—around 7,500 are performed each year at Hospital Clínic de Barcelona. “One of Biograph Vision.X’s clearest advantages is the fast-scanning time. It has improved patient flow in the department without sacrificing diagnostic accuracy. It even makes image acquisition comfortable for the patient,” Niñerola says. Before, a typical PET/CT scan slot at the Hospital Clínic took 30 to 40 minutes to complete. Now the scan slot window is shorter, about 15 to 20 minutes. “Patient anxiety is thus reduced, which is very important for pediatric patients or those suffering from claustrophobia.” And the scanner has also led to a lessening of motion artifacts, another important step in increasing image quality.



Axial PET, fused PET/CT, and CT of lung mass.



Biograph Vision.X at Clínic Nuclear Medicine Service within Hospital Clínic de Barcelona.

figure out time acquisition and reconstruction parameters our nuclear physicians could work with easily. We needed to adapt to these changes but also play with the parameters a little bit until we could reach a comfortable level of diagnostic and quantitative accuracy.”

## Reducing human error

Niñerola points out that the scanner’s automated processes reduce manual intervention and tend to minimize potential human error. “Another helpful feature is the possibility of remote monitoring and support. This allows technicians to troubleshoot any issue quickly without the need for on-site assistance. And that means less downtime for the equipment overall.”

## Detecting lesions precisely

Fuster says his team experienced a learning curve in terms of optimizing parameters and adapting to higher noise levels. “We tend to forget that more detail can also mean more noise,” he explains. “But now we are used to seeing these new images; it would not be possible to go back to the old ones. It will help to enhance our lesion detection capabilities.”

This is where Biograph Vision.X’s 178-picoseconds time of flight (TOF),

the fastest in the industry,<sup>1</sup> comes into its own. The scanner can detect the location of events that are reaching its detectors from different places in the patient’s body with an astonishing level of precision. “That means that it can deliver high quality imaging so we can detect lesions more precisely,” adds Niñerola.

“The learning curve, of course, varies according to one’s previous experience with PET/CT systems. I think the most difficult part was to

Quality control has also improved for the Hospital Clínic’s PET/CT scans, thanks in part to an automated calibration routine that the system performs overnight, ensuring a more consistent performance over time, according to Niñerola.

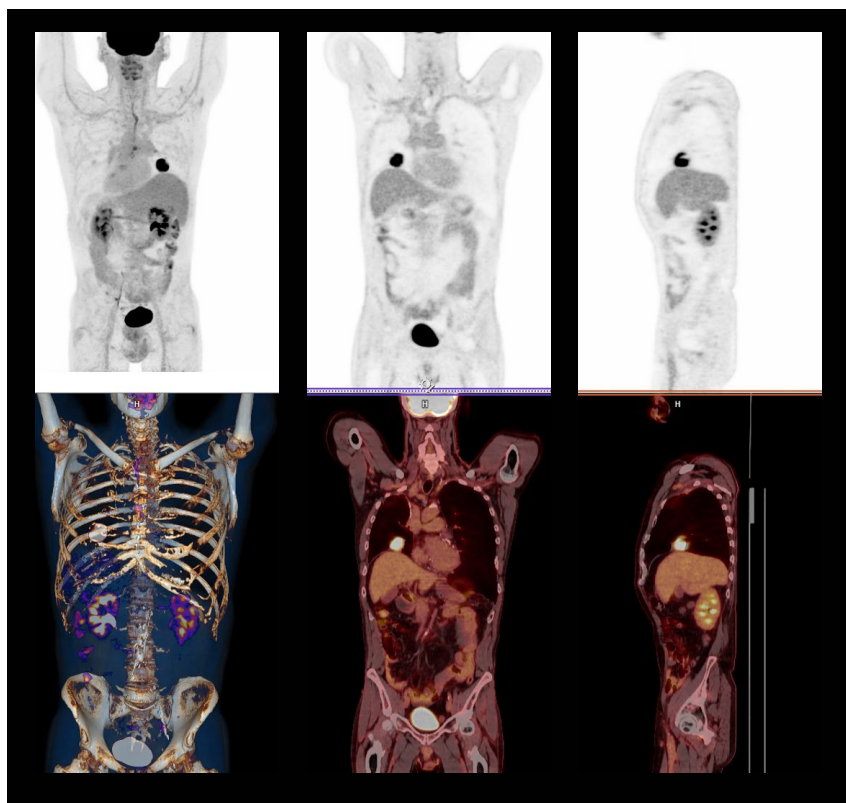
“Continuous system-performance monitoring also helps identify issues before they can have an impact on our patients. It’s very different from situations in which you need to



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Top row: PET MIP, coronal, sagittal  
Bottom row: VRT, fused coronal PET/CT, sagittal

perform periodical manual checks. There's a clear difference when we compare this to other systems."

## Signifies commitment

By enhancing diagnostic accuracy, improving patient throughput, and reducing human error, the introduction of the Biograph Vision.X PET/CT scanner underscores the hospital's commitment to superior patient care and pioneering medical research. As the Hospital Clínic continues to evolve with advancements in technology, it remains a beacon of innovation and excellence for Barcelona's increasing patient population and the greater medical community. ●

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<sup>1</sup> Based on competitive literature available at time of publication. Data on file.

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Biograph Vision.X is not commercially available in all countries.

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