

Are you HD ready?

Change the whole picture with HD·PET.

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You're HD Ready if:

You've been concerned about missing small abdominal lesions in patients with intestinal lymphoma and ovarian carcinoma.

You've had difficulty picking up early recurrences in head and neck malignancies — especially in post-op and post-radiation patients.

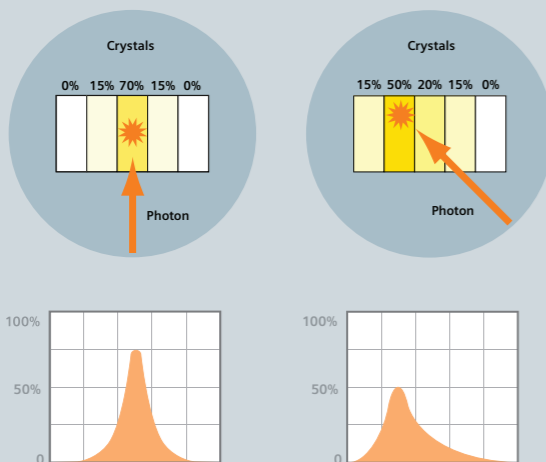
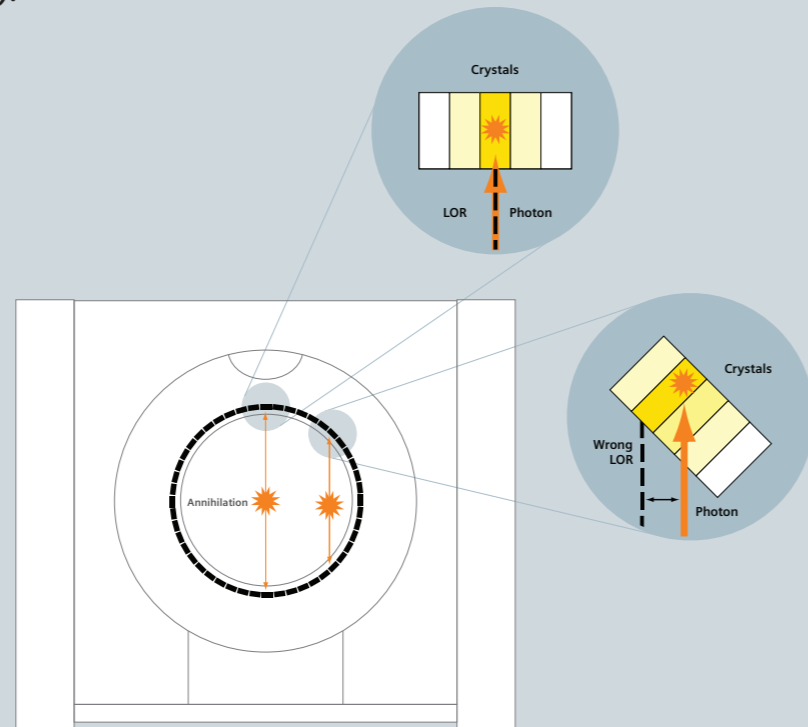
You've ever felt doubtful reporting small hilar and mediastinal nodes as metastatic — especially in post-radiation patients and those with fibrosis, effusion and pneumonitis.

Just as HDTV redefined the television viewing experience, HD·PET will forever change the way you see PET·CT. The world's only PET technology with uniform resolution throughout the entire field of view, HD·PET is the first to deliver razor sharp, distortion-free image quality from edge to edge. Allowing you to precisely visualize even the tiniest lesions with unmatched contrast and clarity. For diagnostic confidence, there's nothing like it.

Conventional PET or HD-PET: What's the real difference?

HD-PET provides 2x signal-to-noise improvement and near uniform spatial resolution of 2 mm throughout the entire field of view (FOV).

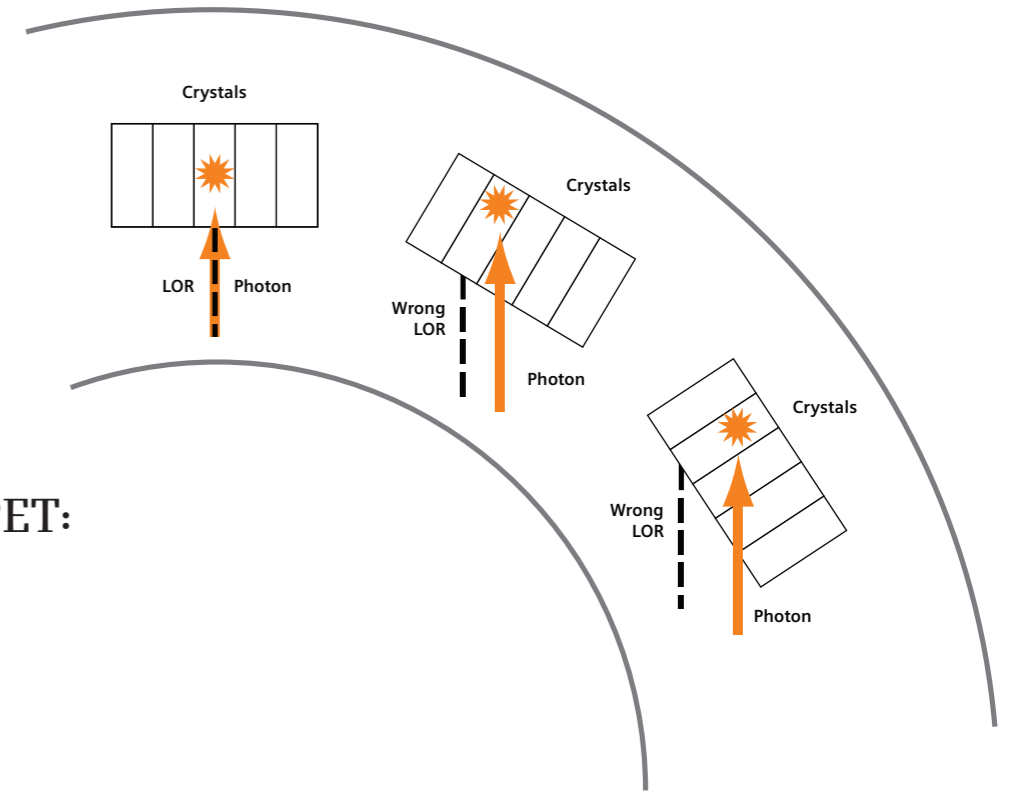
When a photon strikes a crystal, it travels a certain distance before its energy is converted into light. If the photon comes from the center of the FOV, the line of response (LOR) is likely to be correctly localized in the crystal in which the photon entered. The further away from the center of the FOV, the less likely the LOR will be calculated correctly because the photon will hit the crystal on an angle and continue traveling to another crystal before it lights up.



A **Point Spread Function (PSF)** describes the response of an imaging system to a point source or point object. A system that knows the response of a point source from everywhere in its FOV can use this information to recover the original shape and form of imaged objects. PSFs are used in precision imaging instruments, such as microscopy, ophthalmology, and astronomy (e.g. the Hubble telescope) to make geometric corrections to the final image.

Conventional PET:

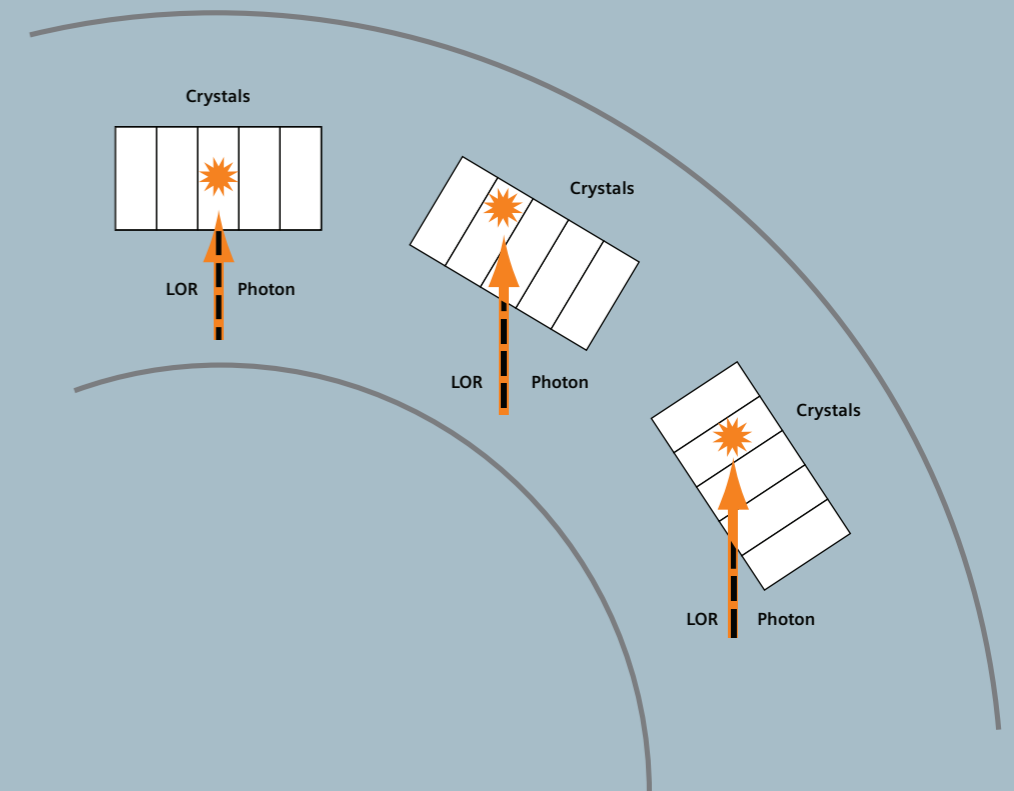
Conventional PET uses the same reconstruction principles across the entire FOV and does not take into account the detector geometry and mispositioning of the LORs. This results in fuzzy edges and increased distortion further from the center of the FOV.



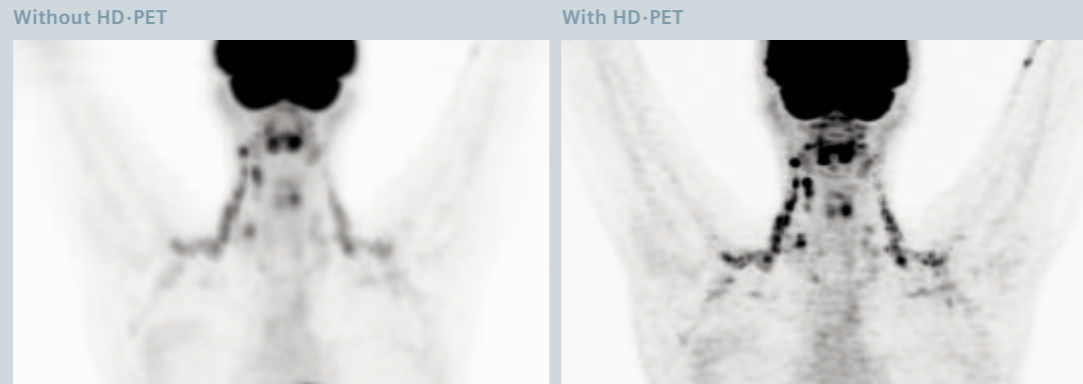
HD-PET:

HD-PET incorporates millions of accurately measured point spread functions in the reconstruction algorithms.

Using measured PSFs, HD-PET effectively positions the LORs in their actual geometric location, which dramatically reduces blurring and distortion in the final image.



Picture HD Uniformity



Data courtesy of the University of Erlangen

Ready for uniform spatial resolution throughout the entire field of view?

Imagine clear, more defined images from edge to edge. HD-PET delivers uniform sharpness with virtually no distortion — even at the edge of the field of view. For more consistent visualization of fine details, no matter where you look.



Without HD-PET

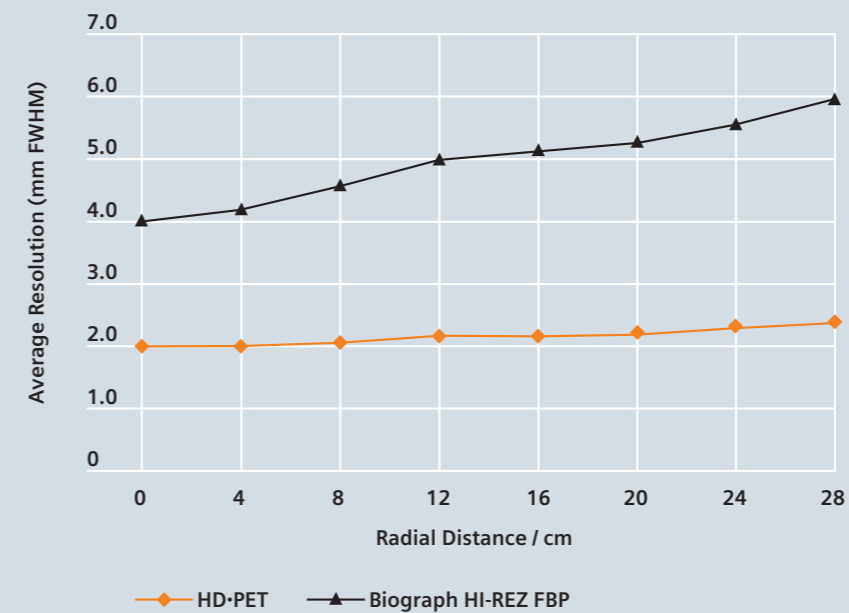
With HD-PET

Picture HD Resolution

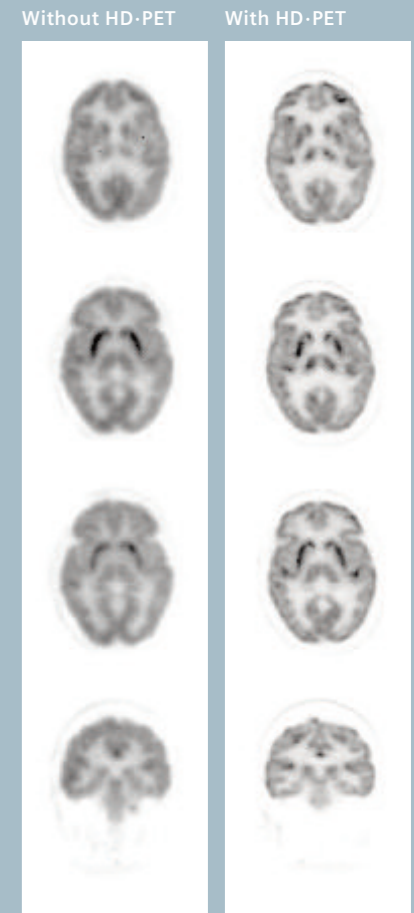
Ready to see the smallest lesions in even the hardest to see places?

With uniform spatial resolution of 2 mm throughout the entire field of view, HD-PET provides the highest level of detail to improve detectability of tiny lesions. Even in places that were hard to see before, such as the lymph nodes, abdomen, mediastinum, head and neck, and cerebellum.

HD-PET provides near uniform spatial resolution of 2 mm throughout the entire FOV.



Measurements were taken with a line source suspended in air at radial positions from the center to 28 centimeters in 4 centimeter steps. The Biograph HI-REZ-FBP data were reconstructed with a standard filtered backprojection algorithm after FORE rebinning and the HD-PET data were reconstructed with the TrueX algorithm using six iterations and 14 subsets.



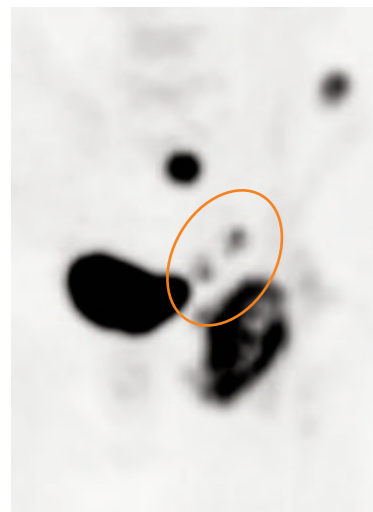
Data courtesy of the University of Tennessee

Picture HD Contrast

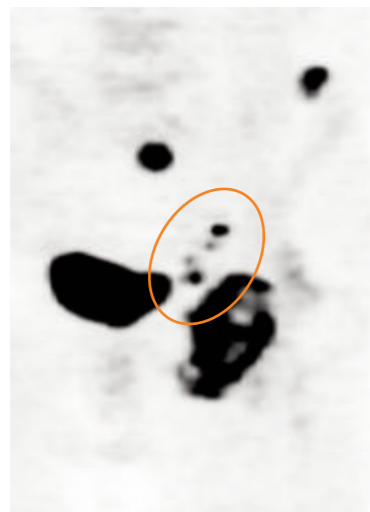
Ready for a 2x increase in signal to noise ratio?

With a 2x improvement in signal-to-noise ratio, HD-PET provides sharper image contrast and greater distinctness — for clearer looking PET images that are easier to read. With HD-PET, you'll see the highest level of PET contrast that has ever been delivered.

Without HD-PET



With HD-PET

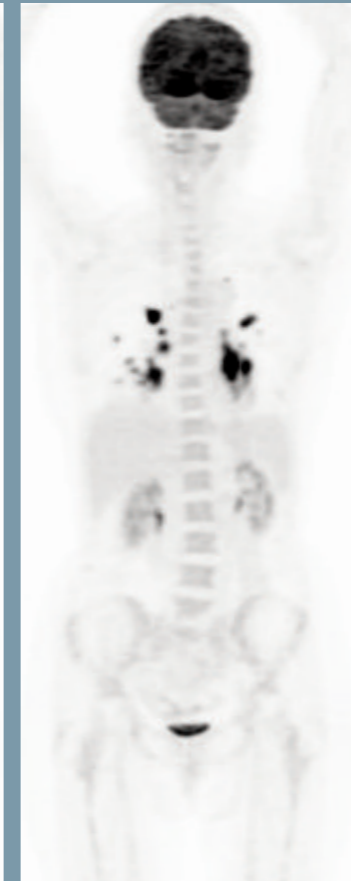


Data courtesy of the University of Erlangen

Without HD-PET



With HD-PET



Data courtesy of the University of Tennessee

Picture HD Clarity

Ready for a clear picture of the future?

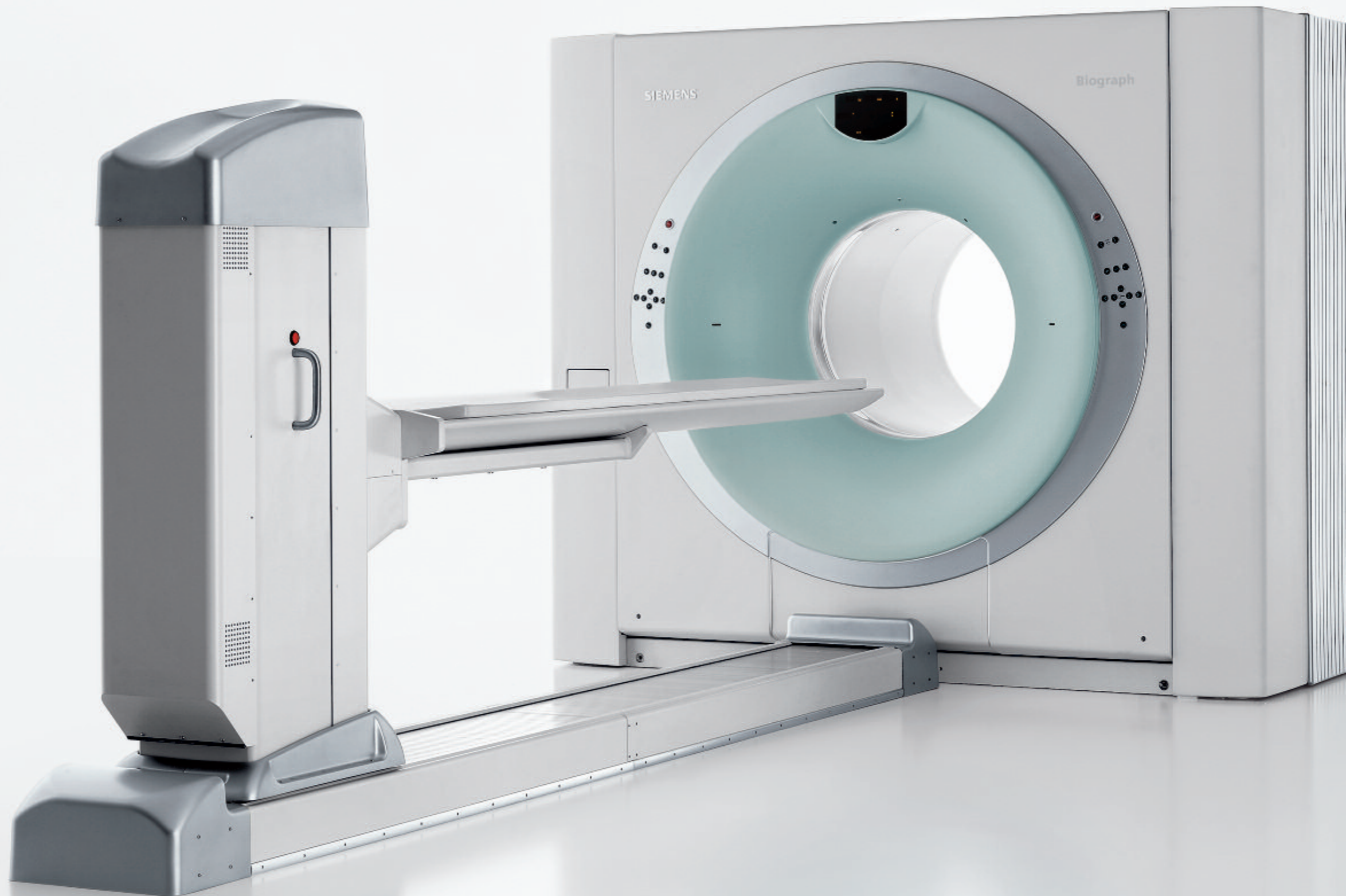
HD uniformity. HD resolution. HD contrast. All the benefits of HD-PET add up to one thing — a superior level of image clarity that no other PET technology has achieved. One that provides greater specificity — including increased organ definition and lesion detectability — for more confident diagnoses and more targeted treatment.

HD Uniformity + HD Resolution + HD Contrast = HD Clarity

HD Ready? It's easier than you think.

If you have a new or installed Biograph TruePoint PET-CT, you're already set up for HD-PET. Part of Siemens upgradeable Biograph TruePoint family of PET-CT scanners, HD-PET technology is fully compatible with your system. So it's easy to make the transition.

Continuing our leadership in the development of PET-CT imaging, the latest innovations incorporated into HD-PET deliver more uniformity, more resolution, more contrast and more clarity than ever before. Are you ready? We are.



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