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Earlier Identification of Metastatic Disease in Breast Cancer

It's About Knowing...

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PETNET Solutions

Earlier Identification of Metastatic Disease in Breast Cancer

It's About Knowing...



Some metastatic sites such as lymph nodes or bone marrow are not easily depicted by conventional imaging, resulting in delays in diagnosis and therapeutic intervention.¹

- 45% of women diagnosed with breast cancer will either have metastatic disease at the time of diagnosis or develop recurrent disease following localized treatment.²
- PET•CT provides an impact in management of breast cancer patients over 50% of the time.⁵
- "PET•CT accurately detected more regions with malignancies than did CT."⁶

Monitoring after 2nd course of chemotherapy

	Sensitivity	Specificity	NPV
PET•CT	89% ³	95% ³	85% ³
US	64% ³	43% ³	55% ³
Mammography	31% ³	56% ³	45% ³

"This prospective study demonstrated that patients with microscopic and macroscopic residual disease can be distinguished noninvasively by FDG PET as early as after the first course of chemotherapy, and even more effectively after the second course."

— Rousseau C, et al³

Medicare recognizes the utility of PET and PET•CT in breast cancer.*

Staging

PET is covered as an adjunct to standard imaging modalities for staging patients with distant metastases.

Restaging

PET is covered for restaging patients with locoregional recurrence or distant metastases.

Monitoring response to therapy

PET is covered for monitoring tumor response to treatment for women with locally advanced and metastatic breast cancer when a change in therapy is anticipated.

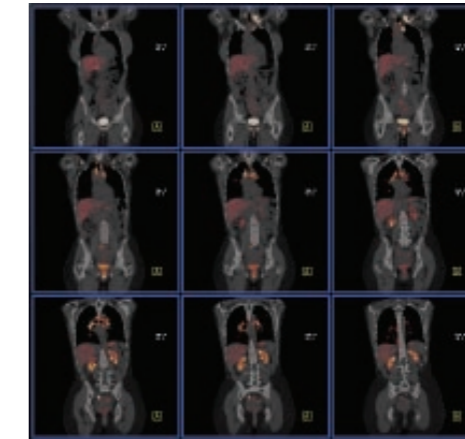
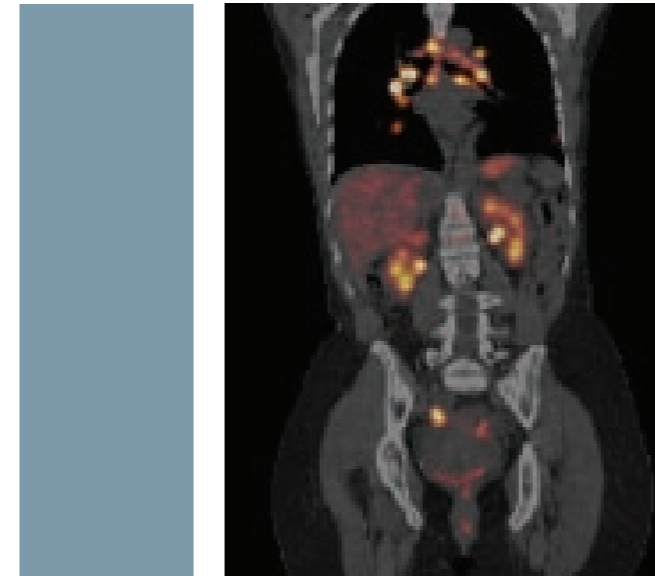
The ordering physician is responsible for documenting the medical necessity of the PET scan and that it meets these criteria.

PET•CT adds incremental diagnostic confidence in breast cancer. ⁶					
	Sensitivity	Specificity	NPV	PPV	Accuracy
Staging					
PET•CT	97.8% ⁴	93.5% ⁴	85% ⁴	99.1% ⁴	97.3% ⁴
CT	87.6% ⁴	42% ⁴	31.7% ⁴	91.6% ⁴	82.1% ⁴
Recurrence					
PET•CT	85% ⁵	76% ⁵			81% ⁵
CT	70% ⁵	47% ⁵			59% ⁵

PET•CT can play a critical role in monitoring response to therapy

- Functional changes precede anatomical changes; therefore, earlier assessment of therapeutic response is achievable with PET•CT.
- PET•CT differentiates responders from non-responders earlier in the course of chemotherapy than conventional imaging, according to a prospective study published in the Journal of Clinical Oncology.³

PET reveals extent of metastases in patient with breast cancer



Images courtesy of Dr. M. Charles Intenzo and Dr. M. Sung Kim, Jefferson Center City Imaging, Philadelphia, Pennsylvania

History

39 year old woman with history of breast carcinoma treated with left mastectomy and tamoxifen therapy 4 years later presented with enlarged neck nodes suspicious for metastases.

Imaging Findings

The FDG PET•CT study showed extensive FDG avid supraclavicular and mediastinal lymph node metastases involving bilateral hilar nodes as well as anterior mediastinal and prevascular nodes. Metaboli-

cally active celiac node metastases were also visualized. There were multiple metastatic lung nodules in both lobes that were not visualized on CT.

Treatment

Based on the PET•CT findings the patient was classified as stage IV breast cancer and was put on Herceptin® chemotherapy and tamoxifen was continued.

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3. Rousseau C, Devillers A, Sagan C, et al. Monitoring of Early Response to Neoadjuvant chemotherapy in stage II and III breast cancer by [18F]Fluorodeoxyglucose positron emission tomography. J Clin Oncol. 2006;24:5366-5372.
4. Piperkova E, Raphael B, Altinyay ME, et al. Impact of PET/CT in comparison with same day contrast enhanced CT in breast cancer management. Clin Nucl Med. 2007;32(6):429-434.
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6. Tatsumi M, Cohade C, Mourtzikos FA, et al. Initial experience with FDG-PET/CT in the evaluation of breast cancer. Eur J Nucl Med Mol Imaging. 2006; 33(3):254-262.

* Centers for Medicare & Medicaid Services. Medicare National Coverage Determinations Manual. Chapter 1, Part 4, Section 220.6. http://www.cms.hhs.gov/manuals/downloads/ncd103c1_Part4.pdf. Revised June 27, 2008.