SIEMENS

Press Presse Press Presse

Healthcare Sector

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Factsheet "Magnetic Resonance for Breast Care"

Background:

- At close to 30 percent, breast cancer is the most frequently diagnosed cancer in women. On average, 57,000 women per year are diagnosed with breast cancer in Germany. The yearly mortality rate reaches 17,500.
- The American National Cancer Institute estimates that a woman has a 1-in-8 chance of developing breast cancer during her lifetime.
- The American Cancer Society's new screening guidelines will impact up to 1.4 million high-risk women by recommending they should receive annual MRI screenings in addition to x-ray mammography. A high percentage of these women will benefit from breast MRI.

What is Magnetic Resonance (MRI)?

- Magnetic resonance imaging (MRI) is a method of looking inside the body. Instead of using x-rays, the MRI scanner uses magnetism and radio waves to produce remarkably clear pictures of the body.
- MRI produces soft-tissue images and is used to distinguish normal, healthy soft tissue from pathologic tissue.
- It enables the physician to locate possible lesions.

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- **Early detection with MRI**
  - Breast MRI is recognized as an indispensable adjunctive examination to mammography and ultrasound
  - The painless procedure does not submit the body to harmful radiation and takes between 15 to 30 minutes
  - Has very high sensitivity for invasive carcinoma (near 100%), and recent studies show the specificity of high-risk patients at 93–99%
  - Accepted method in screening high risk patients

- **Diagnostics with MRI**
  - MRI is considered to be a highly sensitive method to evaluate the extent of breast cancer and is more and more used for pre surgical planning
  - MRI is especially suitable for dense breasts, breast implants, or extensive fibrocystic change
  - MRI provides high accuracy in differentiating soft tissue
  - Biopsies can be performed under MR guidance including an interventional procedure planning
  - Supports real-time analysis of the clinical data
  - Ideal clinical procedure for tumor staging

- **Therapy monitoring with MRI**
  - Provides ongoing anatomical and functional information about the lesion throughout the therapy process

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Conducting MRI with Siemens solutions

The MAGNETOM® Family

- MAGNETOM® family systems offer pristine image quality for excellent imaging and increased diagnostic confidence.
- Powered by our Siemens unique Tim® (Total imaging matrix) technology,

Dedicated Breast Scanner: MAGNETOM Espree – Pink (1.5T)

- Combines comfortable 70cm-Open Bore design with a breast coil solution, allowing exceptional breast imaging and biopsy access
- Offers a broad spectrum of routine and advanced applications like spectroscopy, diffusion weighted imaging and motion correction

Applications:

- ***syngo* VIEWS: Volume Imaging with Enhanced Water Signal**
    - Shows good fat suppression and enables 3D bilateral breast imaging with high spatial and temporal resolution in a sub-millimeter range
    - Images can easily be reformatted in any slice orientation due to its near-isotropic voxel size
    - The axial bilateral acquisition provides certain advantages: faster scannning, full coverage of both breast which is essential for the evaluation of the contra-lateral breast and wide lateral coverage up to the axilla region

- ***syngo* BRACE**
    - A three-dimensional motion correction, which works offline in all planes enabling higher accuracy in case of patient movement, especially for small, multifocal lesions
    - Compensates for motion thus reducing artifacts and improving image quality

- ***syngo* GRACE**
    - Solution for quantitative MR breast spectroscopy
    - Shows elevated levels of choline in the breast, which may be an indicator for malignancy

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- Offers additional methods to quantify the choline concentration using automated reference techniques
- Helps monitor the biochemical status of breast lesions during therapy

- ***syngo REVEAL***
  - syngo REVEAL is a Siemens MR diffusion technique which provides additional information on lesions thus improving specificity. By automatically calculated ADC maps it allows you to visualize potentially malignant lesions as well as metastatic infiltrations of lymph nodes and residual or recurrent tumors. Although it adds just a few minutes to your examination, syngo REVEAL with iPAT acceleration can improve diagnostic confidence and influence therapy planning.

- ***syngo TWIST-T****
  - syngo TWIST-T is based on the k-space sampling algorithm of syngo TWIST. Signal-enhanced data can be used to evaluate potential tumor vascularization. As an advanced application for time-resolved 3D MR dynamic imaging, syngo TWIST-T can be used for soft-tissue imaging like breast MRI. It offers great flexibility in terms of k-space sampling schemes. Furthermore, syngo TWIST-T is iPAT-compatible for maximum imaging speed: sub millimeter spatial and high temporal resolution are the basis for high-quality dynamic datasets that can be evaluated either in 3D or 4D format.

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