Planmed

Advanced Breast Care Solutions

Advanced Application

The value of advanced applications will be to provide additional clinical information in order to improve decision making accuracy to either confirm or exclude a suspected abnormality and in particular, to detect small breast cancers.[3,4]

Screening, Diagnostic and Advanced Applications

Two modes of operation are defined for this detector: one for screening and diagnostic and the other for advanced applications. The two primary differences between operation modes: frame rate and dynamic range. The screening read out time is 1.3s and for tomosynthesis 0.4s. Quantum noise is limited to 0.2mR.[1]

Benefits of breast tomosynthesis[2,3,4]

Distinguish malignant from benign & analyze lesion margin	• Probably benign lesion • Analyze if a single malignant feature is found
Reduce number of biopsies performed	• More accurate differential diagnosis • Proper adjunctive methods
Reduce number of recall examination	• Confidently interpret the finding as a summation • An abnormality is or is not present
Verify correct target for biopsies	• Some lesions may be indistinguishable from normal structures • Nonspecific detected lesions cannot be fully revealed
Analyze tumor margin & get better knowledge of the extent of breast cancer	• Multifocality • Multicentricity • Proper surgical planning

High DQE with low dose[1,5]

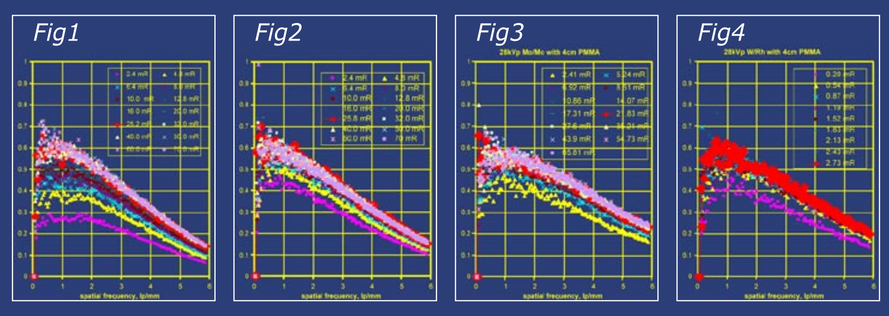

Fig1. Planmed's first generation
Fig2. Planmed's second generation
Fig3. Screening mode
Fig4. Advanced Application mode

Digital Breast Tomosynthesis

The prototype of tomosynthesis full field digital mammography system which will be used in future evaluation is based on real-time amorphous selenium (α-Se) flat panel detector (FPD) technology. The overall thickness of the selenium structure is 200μm, and the pixel size of this detector is 85μm.[1]

The total arc of the breast tomosynthesis system is 60° (-30° to +30°) and tomosynthesis sequence is performed at approximately 1-1.5 times the radiation dose of a conventional mammogram including 15 low-dose exposures.[4,5]

The results of earlier clinical studies indicate that diagnostic breast tomosynthesis improves the ability to analyze lesion margins and distinguish malignant from benign. This increased diagnostic information results in better identifying the correct target for biopsy, helps analyze tumor margins and the extent of breast disease while helping to reduce the overall number of biopsies performed.[2,3,4,5]

To be clinically successful, this new method of full breast tomosynthesis must offer improvements over existing approaches in sensitivity and specificity, reduced risk while providing a cost-effective workflow.[3]

Planmed has achieved system performance measurements, phantom and physics tests of tomosynthesis imaging with a prototype unit. In the future we will continue α-Se FFDM tomosynthesis evaluation with clinical patients.[5]

The prototype of the Planmed Nuance tomosynthesis full field digital mammography system

References

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works in progress