

## Evaluation of the mean glandular dose for digital breast tomosynthesis and Full-Field Digital Mammography in Brazil.

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### Introduction

The assessment of mean glandular dose is important to reduce and control the potential risk of radiation induced carcinogenesis during mammography procedure. The quantity mean glandular dose (MGD) describes of risk for glandular tissue. The purpose of the study was to estimate patient mean glandular dose in the two standard views, cranio-caudal and médio lateral oblique for mammography procedures in the Brazil. The study was also aimed to identify Quantitative image quality assessment undertaken on mammography systems in Brazil to review the overall condition equipment with respect to image quality in order to suggest improvements in the practice.

### Methods

The images, in the cranial caudal (CC) and mediolateral oblique (MLO) projections, were separated into intervals of compressed breast thickness and patient age and were analysed by the software VolparaDensity. To compile the mean glandular dose data, the VolparaDose software was used. The Statistical Package for the Social Sciences (SPSS) software was used to perform all statistical and graphic calculations. These tests were carried out in both digital mammography (2D) and DBT modalities.

### Results

The MTF was obtained for the DBT projection images and in the FFDM mode to quantify the differences in spatial resolution due to binning pixels in the parallel and perpendicular directions to the tube motion. The estimated MGD values for different breast thicknesses under the 2D and DBT were evaluated. In general, it was observed that the MGD values for the tomosynthesis examination are slightly larger than for the 2D, hence the importance of defining protocols for using the DBT image as well as the implementation of the synthetic image in DBT systems.

### Conclusions

The results showed correct operation for 2D mode. There are no tolerances or limit values for DBT systems. The results presented here are just to show the performance of the systems for the acquisition stage. Differences between systems at this stage are emerging from different angular range and number of projections.