Title: Tomosynthesis Guided Breast Biopsy: A New Method for Performing Stereotactic Breast Biopsy

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Objectives:
To evaluate strengths and weaknesses of a new method to perform mammographic guided breast biopsy.

Methods:
Magee-Womens Hospital was the first institution in the United States to perform 3D mammographic or tomosynthesis guided breast biopsy (TGBB) with an add-on system to a commercially available Dimension Tomosynthesis unit. 50 of the initial patients were evaluated for the following data points:

- Nature of the lesion (e.g. calcification, architectural distortion, mass, etc.)
- Procedure time
- Complication rate: Immediate and Delayed
- Success rate of the procedure
- Approximate radiation dose
- Clip Migration
- Patient acceptance graded by pain scale

Results:
We identified the following from our initial experience performing biopsies with the Tomosynthesis guided upright vacuum assisted biopsy technique:

- The lesions biopsied were similar to lesions biopsied using standard prone stereotactic biopsy.
- Calcifications were most common type of lesion biopsied. Architectural distortion and masses were also biopsied, some of which would have been difficult to visualize with a standard stereotactic imaging system.
- Upright TGBB was performed in less time that the time that we currently allow for a prone stereotactic biopsy.
- There were no complications encountered with TGBB which are not expected complications which occur with prone stereotactic biopsy e.g. minor bleeding and although theoretically there could be an increase of vasovagal episodes, none were experienced with this group.
- The biopsy success rate was 100%.
- The approximate radiation dose was less than reported for stereotactic biopsies.
- We noticed increased patient and physician satisfaction with a median pain score of 2 reported.

Conclusion: TGBB is a new tool for performing mammographic guided biopsies. It appears to be a very versatile tool which can be used to biopsy mammographically visible lesions as well as lesions not well imaged by standard 2D mammography. The complication rate, success rate, radiation dose, and patient acceptance are equal to and in some cases superior to standard prone stereotactic biopsy.