



## The Clinical Impact of Breast Specific Gamma Imaging in Our Clinical Experience

### Introduction

We have been maintaining a patient registry to document our clinical experience using BSGI. As of June 10, 2009, there have been 249 patients entered into the database and 109 patients who subsequently had either a tissue biopsy or short term follow up available to use as the gold standard. We have prepared a statistical analysis of the available data and overall, the sensitivity was 91%, specificity 93%, positive predictive value 59% and negative predictive value 99% of BSGI in our practice.

	N
<b>True Positive</b>	10
<b>True Negative</b>	89
<b>False Positive</b>	7
<b>False Negative</b>	1
<b>Total</b>	107
<b>Sensitivity</b>	91%
<b>Specificity</b>	93%
<b>PPV</b>	59%
<b>NPV</b>	99%
<b>Accuracy</b>	93%
<b>FNR</b>	1%

Overall BSGI results

### Analysis

The majority of these patients (86) had an either an indeterminate mammogram finding (BIRADS 0 or III). In this group, there were 8 malignant lesions and 77 benign findings. BSGI was positive in 7/8 of the patients with malignancy. Of the 77 patients with benign findings, BSGI was negative in 72 and positive in 5.

BSGI indicated the need for biopsy in 12 (14%) of patients with indeterminate mammographic findings. There were 7 malignant and 5 benign biopsies conducted as a result of the use of BSGI in this population.

One patient who had an indeterminate mammogram and ultrasound along with a negative BSGI elected to undergo biopsy and an infiltrating ductal carcinoma was found at that biopsy.

### Cost of Diagnosis

BSGI yielded 7 malignancies in 86 patients. With a per procedure cost of approximately \$350.00 the total cost of conducting these studies is \$30,100. This cost divided by 7 malignancies results in a cost per diagnosis of \$4,300. To put this into perspective, if breast MRI rather than BSGI had been used, the approximate cost would be \$1,000 per procedure resulting in a cost per diagnosis of \$12,285.

### Conclusion

In our experience, BSGI has been a sensitive and specific adjunctive test for the detection of breast cancer. It has been particularly useful in our patients with indeterminate findings on mammography. BSGI provided a cost-effective tool to manage these patients.