

# Incidental Breast Findings on Chest and Abdominal MRI: Follow-up and Cancer Detection Rates

## Background

- The use of cross sectional imaging between 1997 and 2006 has nearly doubled with the use of MRI nearly tripling over this ten year period.<sup>1</sup>
- A systemic review of the prevalence of CT incidentalomas and outcomes of imaging finding showed that breast incidentalomas had the highest percentage of malignancy (42%).<sup>2</sup>
- Data is lacking on work-up and cancer detection rates for breast incidentalomas discovered on chest and abdominal MRI.

## Aims

- The aim of the study was assess the frequency of incidental breast findings on MRI chest/abdomen protocols, review what follow-up if any is performed, and report the final diagnosis (benign vs. malignant) of these lesions.

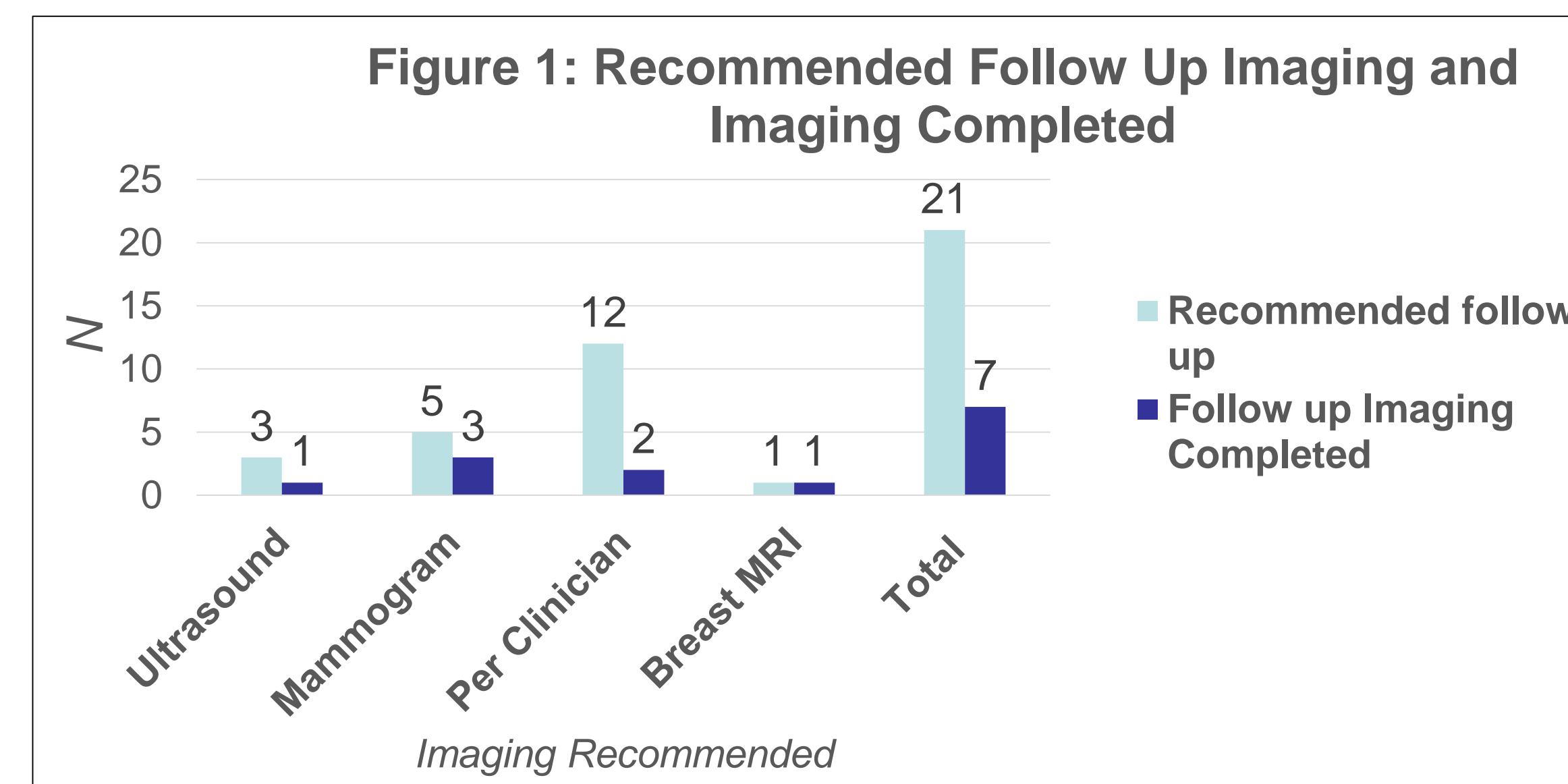
## Methods

- A single institution retrospective study was performed on women who underwent abdominal or chest MRI for a non-breast reason from 1/2007-1/2017
- Any radiology report with a breast finding was included
- Incidental findings were defined as lesions not suspected prior to imaging
- For all patients where a breast lesion was identified, the radiologic reports, additional follow up imaging and procedures, and final breast pathology were reviewed
- Descriptive points were analyzed using counts and percentages versus mean with standard deviation where applicable

## Patient Population

- 261 female patients identified with the keyword “breast” in the abdominal/chest MRI radiologic report

Demographic	N	% of Total
Age	56 +/- 11 years	N/A
<i>Race</i>		
American Indian	1	0.4
Asian or Pacific Islander	6	2.3
African American	18	6.9
Caucasian	18	6.9
Unknown	215	83.5
<i>Insurance</i>		
Medicaid	10	3.8
Medicare	98	37.5
Private	142	54.4
Unknown	9	3.4
<i>Breast Cancer Status</i>		
History of breast cancer without current breast disease	163	62.5
No prior history of breast cancer	98	37.5
<i>Type of MRI</i>		
MRI chest	25	9.6
MRI abdomen	235	90.4
<i>Location of Imaging</i>		
Cancer Center	74	28.4
Main Campus (Tertiary Referral Center)	106	40.6
Suburban	63	24.1
Other	15	6.9



## Results

- 8% (n=21) had a breast finding for which follow up was recommended (Figure 1)
  - Ultrasound (n=3), Mammogram (n=5), Per clinician (n=12), MRI Breast (n=1)
- 7/21 (33.3%) completed the recommended follow up imaging
  - 86% (6/7) was normal and return to yearly screening was recommended
  - 14% (1/7) had a new breast cancer diagnosis
- Thus, the rate of new breast cancer diagnosis from abnormal abdominal or thoracic MRI was 4.7% overall
  - This cancer was identified on diagnostic mammogram/ultrasound
  - Breast MRI did not lead to cancer detection
- Recommendation for specific imaging follow up (mammogram, ultrasound or MRI) was 40% more likely to be completed versus per clinician (p= 0.15)

## Discussion

- Incidental breast findings on abdominal/chest MRI are uncommon but follow up is important to exclude new breast cancer diagnosis
- Specific imaging recommendations (versus “per clinician”) improve rate of follow up, with mammogram/ultrasound being appropriate modalities to recommend
  - Breast MRI does not improve cancer detection rates
- Multi-insitutional or larger studies may further define the rate of breast cancer diagnosis for breast incidentalomas on abdominal/chest MRI
- Studies focusing on improving follow-up rates for incidentaomas are important for patient safety and quality of care

## References

1. Smith-Bindman R, Miglioretti DL, Larson EB. Rising use of diagnostic medical imaging in a large integrated health system. *Health Aff (Millwood)*. 2008;27(6):1491–1502. doi:10.1377/hlthaff.27.6.1491
2. O’Sullivan Jack W, Muntinga Tim, Grigg Sam, Ioannidis John P A. Prevalence and outcomes of incidental imaging findings: umbrella review *BMJ* 2018; 361 :k2387