

# Breast Imaging Orders and the Electronic Health Record: How To Help Your Providers Get It Right

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# Purpose

- Appropriate ordering of breast imaging studies is complex, with nearly 70 breast imaging order options available in the Epic electronic health record (EHR) at our institution.

The screenshot shows the Epic Order Search interface for the search term 'mammo'. The search results are categorized into Panels, Medications, and Procedures. The Procedures section is expanded, showing a list of 30 different breast imaging procedures. Each row includes a home icon, the procedure name, frequency, type, procedure code, preferred list, and cost to organization.

Name	Frequency	Type	Px Code	Pref List	Cost to Org
Mammo tomosynthesis, diagnostic, bilat breasts w screening ultrasound		Proc Panel	O216027	AMB FACILITY L...	
Mammo tomosynthesis, diagnostic, bilat breasts w ultrasound		Proc Panel	O174433	AMB FACILITY L...	
Mammo tomosynthesis, diagnostic, implant, bilat breasts w ultrasound		Proc Panel	O198093	AMB FACILITY L...	
Mammo tomosynthesis, diagnostic, implant, left breast w ultrasound		Proc Panel	O198095	AMB FACILITY L...	
Mammo tomosynthesis, diagnostic, implant, right breast w ultrasound		Proc Panel	O198097	AMB FACILITY L...	
Mammo tomosynthesis, diagnostic, left breast w ultrasound		Proc Panel	O198094	AMB FACILITY L...	
Mammo tomosynthesis, diagnostic, right breast w ultrasound		Proc Panel	O198096	AMB FACILITY L...	
Mammo tomosynthesis, screening, bilat breasts w ultrasound		Proc Panel	O198098	AMB FACILITY L...	
Mammo tomosynthesis, screening, implant, bilat breasts w ultrasound		Proc Panel	O198102	AMB FACILITY L...	
Mammo tomosynthesis, screening, implant, left breast w ultrasound		Proc Panel	O198099	AMB FACILITY L...	
Mammo tomosynthesis, screening, implant, right breast w ultrasound		Proc Panel	O198101	AMB FACILITY L...	
Mammo tomosynthesis, screening, left breast w ultrasound		Proc Panel	O198103	AMB FACILITY L...	
Mammo tomosynthesis, screening, right breast w ultrasound		Proc Panel	O198100	AMB FACILITY L...	
Mammo ductogram, multiple inj, left breast (aka MAMMO)		Imaging	IMG5410	AMB FACILITY L...	
Mammo ductogram, multiple inj, right breast (aka MAMMO)		Imaging	IMG5411	AMB FACILITY L...	
Mammo ductogram, single inj, left breast (aka MAMMO)		Imaging	IMG5408	AMB FACILITY L...	
Mammo ductogram, single inj, right breast (aka MAMMO)		Imaging	IMG5409	AMB FACILITY L...	
Mammo guided aspiration, fine needle, right breast (aka MAMMO)		Imaging	IMG1952	AMB FACILITY L...	
Mammo guided biopsy, core, vacuum asst, left breast (aka MAMMO)		Imaging	IMG5481	AMB FACILITY L...	
Mammo guided biopsy, core, vacuum asst, right breast (aka MAMMO)		Imaging	IMG5482	AMB FACILITY L...	
Mammo guided loc, sentinel node, left breast (aka MAMMO)		Imaging	IMG5414	AMB FACILITY L...	
Mammo guided loc, sentinel node, right breast (aka MAMMO)		Imaging	IMG5415	AMB FACILITY L...	
Mammo guided loc, wire, left breast (aka MAMMO)		Imaging	IMG5412	AMB FACILITY L...	
Mammo guided loc, wire, right breast (aka MAMMO)		Imaging	IMG5413	AMB FACILITY L...	
Mammo guided localization device placement, left breast (aka MAMMO)		Imaging	IMG7151	AMB FACILITY L...	
Mammo guided localization device placement, right breast (aka MAMMO)		Imaging	IMG7150	AMB FACILITY L...	

# Purpose

- As a result, incorrect ordering of screening and diagnostic breast imaging studies is common.
- When patients are scheduled incorrectly, it creates frustration for patients and providers and impacts radiology resource allocation.
- We aim to assist providers in properly selecting breast imaging orders by creating a Breast Imaging Order Panel in the EHR.

# Materials and Methods

- Collaborative stakeholders in primary care and radiology developed a Breast Imaging Order Panel in the EHR with integrated clinical decision support to optimize correct order selection for screening women at average-risk and high-risk of breast cancer and for diagnostic breast imaging for symptomatic patients.
- The panel was created by our Clinical Content Analysts with approval from radiology and primary care governing bodies.

Panels  <span style="float: right;">⌘ (Alt+Shift+1)</span>		
Name	User Version Name	Type
   BREAST IMAGING ORDER PANEL		Order Panel

# Results

- The Breast Imaging Order Panel reduced the number of breast imaging orders in the EHR from 70 to 14.
- The panel subdivides orders based on clinical indication:
  - asymptomatic/screening
  - symptomatic/diagnostic imaging
  - implant rupture assessment
  - follow-up of abnormal imaging findings.
- Clinical decision support within each subdivision aids in selection of appropriate imaging studies.

Breast Imaging Order Panel ✓ Accept

- ASYMPTOMATIC Breast Cancer Screening (Routine)
- SYMPTOMATIC Diagnostic Breast Imaging (lump, focal pain, thickening, nipple discharge, axillary lymphadenopathy, skin change, or dimpling)
- Breast implant rupture assessment
- Follow-up for abnormal breast imaging findings

ⓘ Next Required ✓ Accept

# Results

- For screening, guidelines for average-risk and high-risk patients are provided.
- Screening breast tomosynthesis is defaulted when ordering through the panel.

## ASYMPTOMATIC Breast Cancer Screening (Routine)

### Average risk asymptomatic patients

Bilateral screening mammography is recommended at age 40.

### High risk asymptomatic patients

High risk breast cancer screening should include annual screening mammography and supplemental screening MRI, preferably staggered at 6 month intervals.

This may include patient with:

- a. Lifetime risk of breast cancer 20% or greater
- b. Known genetic mutations
- c. Chest radiation before age 30
- d. Breast cancer diagnosis before age 50

## Screening Mammogram (no breast symptoms)

Tomosynthesis will be offered at the time of scheduling at no extra charge to patient

### Mammo tomosynthesis, screening, bilat breast ■

Expires: 5/28/2023, Routine, Ancillary Performed

### Mammogram, screening, bilat breast ■

Routine

Screening Breast Ultrasound - NOT recommended for screening of average risk patients, even for women with dense breasts

## High Risk Breast Cancer Screening (see guidance above)

### Screening Mammogram

### Bilateral Screening Breast MRI for High Risk Patients

Screening bilateral breast ultrasound - ONLY indicated for high risk patients in which MRI is contraindicated. There is NO recommendation for screening breast ultrasound in average risk patients.

# Results

- For symptomatic patients, recommended imaging is based on patient age, gender and laterality of symptoms.
- The need for tomosynthesis versus 2D mammogram will be determined by radiology.

SYMPTOMATIC Diagnostic Breast Imaging (lump, focal pain, thickening, nipple discharge, axillary lymphadenopathy, skin change, or dimpling)

- For **DIFFUSE** breast pain, screening mammography is recommended for initial evaluation.
- Diagnostic imaging is **NOT** indicated for **ASYMPTOMATIC** patients with dense breasts.

Women 30 or older: bilateral diagnostic mammogram and ultrasound of affected side

Tomosynthesis will be performed as determined by radiology.

Left breast symptoms

Mammogram, diagnostic, bilat breasts

Expires: 5/28/2023, Routine, Ancillary Performed

US left breast, diagnostic

Expires: 5/28/2023, Routine, Ancillary Performed

Right breast symptoms

Bilateral breast symptoms

 Women under 30: diagnostic ultrasound of affected side

US left breast, diagnostic

US right breast, diagnostic

US bilat breast, diagnostic (for patients with bilateral breast symptoms)

Men 18 or older: bilateral diagnostic mammogram

**No imaging is indicated for male patients of any age with symptoms of gynecomastia and physical examination consistent with gynecomastia/pseudogynecomastia.**

Mammogram, diagnostic, bilat breasts

Expires: 5/28/2023, Routine, Ancillary Performed

# Results

- For implant rupture assessment, providers can select MR breast without contrast to evaluate implant integrity or MR breast with and without contrast if malignancy assessment is also desired.

 Breast implant rupture assessment

MR breast wo contrast bilat (implant rupture only) 

MR breast wo+w contrast bilat (implant rupture and assess for malignancy) 

# Results

- Simplified diagnostic orders can be selected for follow-up of abnormal imaging findings.
- To reduce confusion and encourage use of the panel, many breast imaging orders were removed from departmental lists.

Breast Imaging Order Panel ✓ Accept

ASYMPTOMATIC Breast Cancer Screening (Routine)

SYMPTOMATIC Diagnostic Breast Imaging (lump, focal pain, thickening, nipple discharge, axillary lymphadenopathy, skin change, or dimpling)

Breast implant rupture assessment

**! Follow-up for abnormal breast imaging findings**

Tomosynthesis will be performed as determined by radiology.

Mammogram, diagnostic, bilat breasts ■

Mammogram, diagnostic, right breast ■

Mammogram, diagnostic, left breast ■

US bilat breast, diagnostic

US right breast, diagnostic ■

US left breast, diagnostic ■

MR breast wo+w contrast bilat ■

! Next Required ✓ Accept

# Conclusion

- Creating a Breast Imaging Order Panel within the EHR is a way to provide clinical decision support to ordering providers.
- When developing a system-wide change that impacts operational workflows, involvement of multiple stakeholders is essential.
- Since Go-Live August 2021, we have received positive feedback, and providers are able to order breast imaging studies as needed. Order panel usage has steadily increased, with 599 orders placed via the order panel February 2022.