

What You Should Know About Screening Mammograms

Catherine Evans, MD
Boulder Radiologists, Inc.



Boulder
Community
Health 

- Frequently asked questions
- Current screening guidelines
- Risks, benefits and limitations
- How to prepare and what to expect
- How to better understand your results and get the most out of your screening mammogram



History of Mammography

- **1913:** X-rays of breast tissue
- **1930s:** First use of x-rays of the breast to detect cancer
- **1950-60s:** Use of breast compression and general purpose x-ray
- **1970s:** Screen-film mammography
- **1980s:** National breast cancer screening
- **1992:** Mammography Quality of Standards Act
- **2000s:** Digital mammography
- **Present day:** Digital breast tomosynthesis



Bettman/Getty Images

Why Should I Get a Screening Mammogram?

- **13% of women** in the United States will be diagnosed with breast cancer at some time in their lives.
- **1 in every 8** women will be diagnosed with breast cancer.
- Breast cancer deaths reduced by almost 40% since the 1980s.
- Mammograms can detect breast cancers that are too small to be felt.
- Breast cancer is more easily treated and more likely to be cured when caught earlier.



Who Should Get Screening Mammograms and How Often?


- Varying guidelines by different medical organizations, but all agree - **mammograms save lives**
- Personal decision based on preferences
- Yearly screening mammography starting at age 40 saves the most lives
- Annual screening **beginning at age 40** and continuing as long patient is in good health
 - Society of Breast Imaging
 - National Comprehensive Cancer Network
 - American College of Radiology

What About Other Guidelines?

- American Cancer Society
 - Annual screening mammograms no later than age 45
 - Women 40-45 have option to start annual mammograms
- U.S. Preventive Services Task Force
 - Screening every every other year for ages 50-74
 - In opposition to guidelines from other organizations
 - These guidelines would miss approximately 1/3 of cancers and result in 6,500-10,000 additional breast cancer deaths each year.

Why Age 40?

- 1 in 6 breast cancer occur in women aged 40-49.
- Breast cancer incidence increases substantially around age 40.
- 40% of the years of life lost to breast cancer is among women diagnosed in their 40s.



Annual screening mammography starting at age 40 results in the greatest mortality reduction, the most lives saved and the most life years gained.

SOCIETY OF SBI BREAST IMAGING
SINCE 1985

#ENDTHECONFUSION

What Age Can I Stop Screening?

- Limited studies on benefits of mammography over age 75.
- Breast cancer risk increases with age.
- American Cancer Society recommends women ages 70 and older continue mammograms on a regular basis if:
 - Patient in good health
 - Would seek and benefit from treatment if cancer is found

What Is My Breast Cancer Risk?

- Most women (75%) who develop breast cancer have no family history or identifiable risk factor.
- Biggest risk factors:
 - Being female
 - Increasing age
- All women should have risk assessment by age 30.
 - Annual lifetime breast cancer risk score
 - Family history and genetics

How Do I Know If I Am At High Risk for Breast Cancer?

- BRCA1 or BRCA 2 gene mutation
- Lifetime breast cancer risk score >20%
- History of chest radiation before the age of 30
- Genetic syndromes

Work with your provider to calculate your lifetime breast cancer risk:

<https://bcrisktool.cancer.gov/calculator.html> (Gail Model)

<https://ibis-risk-calculator.magview.com> (Tyrer-Cuzik Model)

What Should I Do If I Am High-Risk?

- Talk to your provider about high-risk screening guidelines
 - Screening beginning by **age 30** but not before age 25
- Consider genetic consultation
- Supplemental screening modalities
 - High risk screening contrast-enhanced breast MR
 - Screening whole breast ultrasound

What About MRI and Ultrasound?

- **Do not take the place of screening mammograms**
- Can be used as supplement to annual mammograms for screening
 - High-risk patients
 - Patient with dense breasts
- Varying costs
- False positives
- Screening Breast MRI
 - Gadolinium contrast
- Whole Breast Screening Ultrasound
 - Hand-held versus automated
 - No compression, contrast or radiation

Should I Have a Screening or Diagnostic Mammogram?

Screening Mammogram

- Annual for women 40+
- No symptoms
- Covered by insurance under ACA
- Standard two views of each breast
- Reviewed by radiologist in batch after exam

Diagnostic Mammogram

- Symptomatic patients
- Follow up to abnormal screening
- Women and men of any age
- Cost varies, may be subject to co-pay and deductible
- Reviewed by radiologist in real time
- Possible additional images and ultrasound

What Are The Signs and Symptoms of Breast Cancer?

If you are experiencing:

- New lump in the breast or armpit
- New breast or nipple pain (focal, persistent)
- Nipple changes (nipple retraction, non-milky discharge)
- Skin changes (thickening, swelling, dimpling)

...then a screening mammogram is not appropriate.



Talk to your provider about **DIAGNOSTIC** exams.

What Can I Expect During My Screening Mammogram?

- Two standard views of each breast
 - Mediolateral oblique (MLO)
 - Craniocaudal (CC)
- May need additional views
 - Large breasts
 - Artifact (skin folds, motion)
 - Nipple in profile

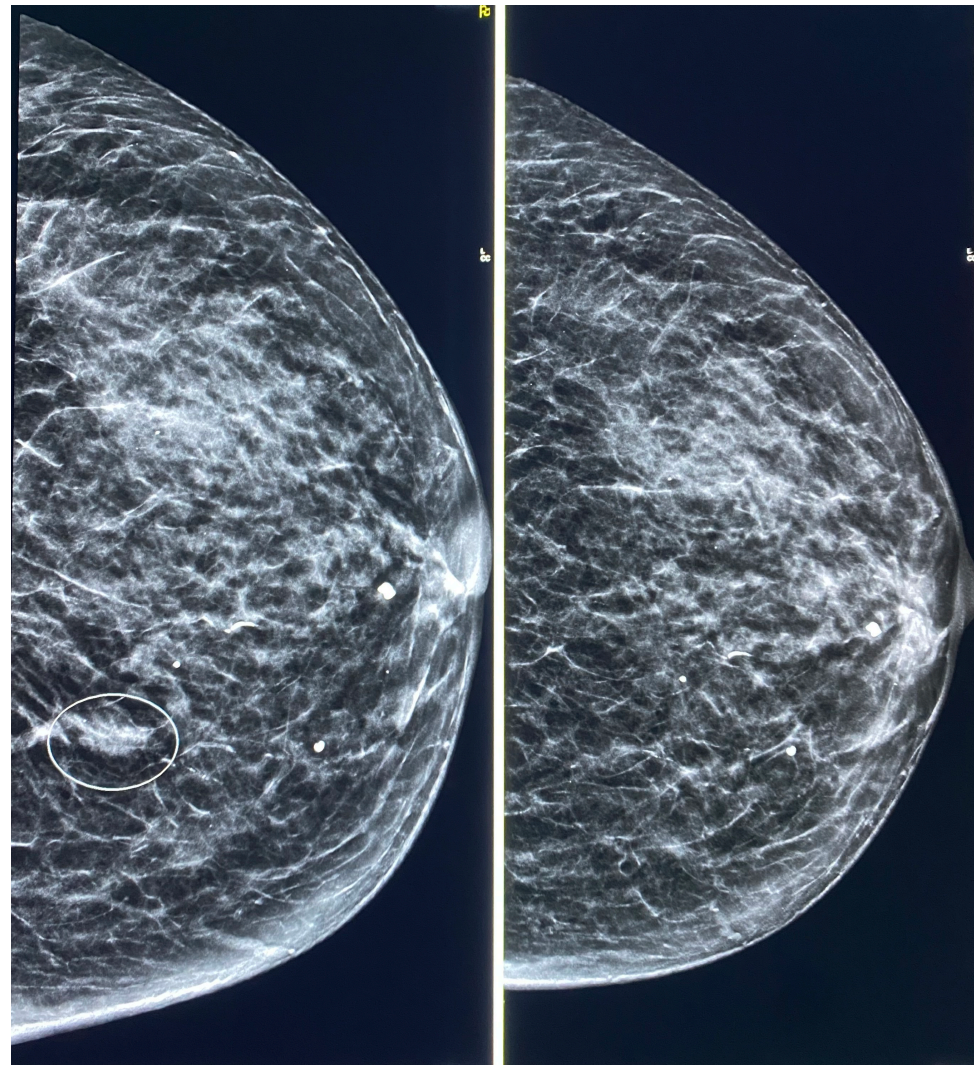


Why is Compression Important?

- Spreads out dense breast tissue
- Prevents motion
- Less radiation exposure

How to minimize pain:

- Avoid scheduling one week prior or during menstrual cycle
- Communicate with your technologist
- Take a pain reliever if needed



Is the Radiation From Mammograms Harmful?

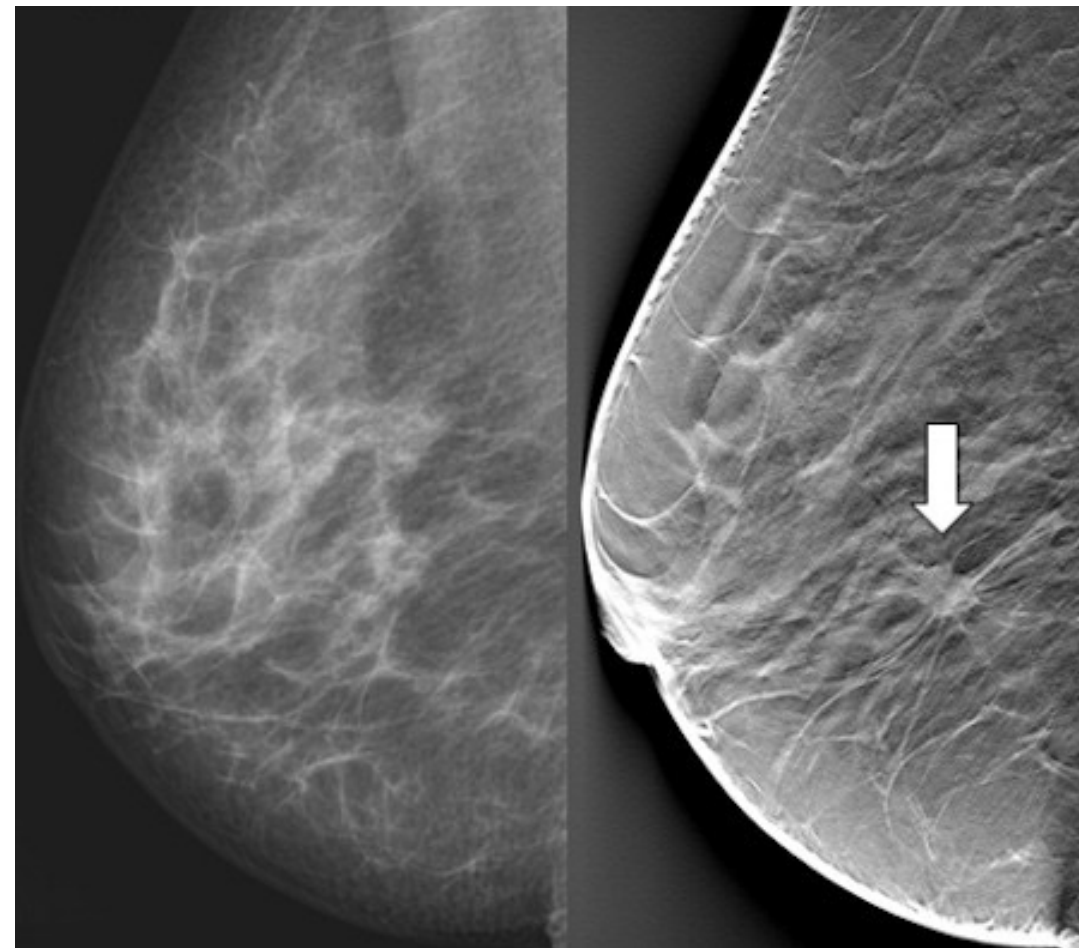
- Risk of causing breast cancer from radiation of mammography is far lower than likelihood of mammography detecting breast cancer for women ages 40 and older
- Low dose radiation within FDA-approved safe levels
- Typical radiation dose is 0.4 mSv
 - Background radiation living in Boulder is 5-6 mSv per year

How Can I Prepare for a Screening Mammogram?

- Know places and dates of prior mammograms, biopsies or other breast procedures
- Know your family history
- Dates of recent vaccinations and which arm
- No deodorant, antiperspirant, powders or creams under the arms or on the breasts
- If breastfeeding, pump or feed immediately prior to appointment

What Is 3D Mammography?

- Digital Breast Tomosynthesis (DBT)
- Reconstructs multiple 2D images into 1 mm slices to create a “3D” image
- Improves breast cancer detection rates
- Decreases need for call backs and biopsies
- All screening mammograms at BCH are performed with tomosynthesis



What Are the Risks and Limitations of Mammograms?

Screening mammograms are not perfect

- Overall sensitivity 87-93%
- False positive results
- Benign biopsies
- Patient anxiety
- Overdiagnosis
- Decreased sensitivity in dense breasts
- Mammographically occult cancers

Despite limitations, mammography remains the gold standard for screening for early stage breast cancer.

What Information Is In a Mammogram Report?

- Clinical history
- Comparison studies
- Breast Composition
- Findings
- Impression
- BIRADS category
- Recommendations

EXAM:

Digital Mammogram screening tomo bilateral

HISTORY:

Screening Mammogram. Baseline. Patient is 40 y.o. No relevant family history has been documented for this patient. No relevant hormone history has been documented for this patient. No relevant surgical history has been documented for this patient. No relevant medical history has been documented for this patient.

Comparison studies: None

BREAST COMPOSITION:

Density D: The breasts are extremely dense, which lowers the sensitivity of mammography.

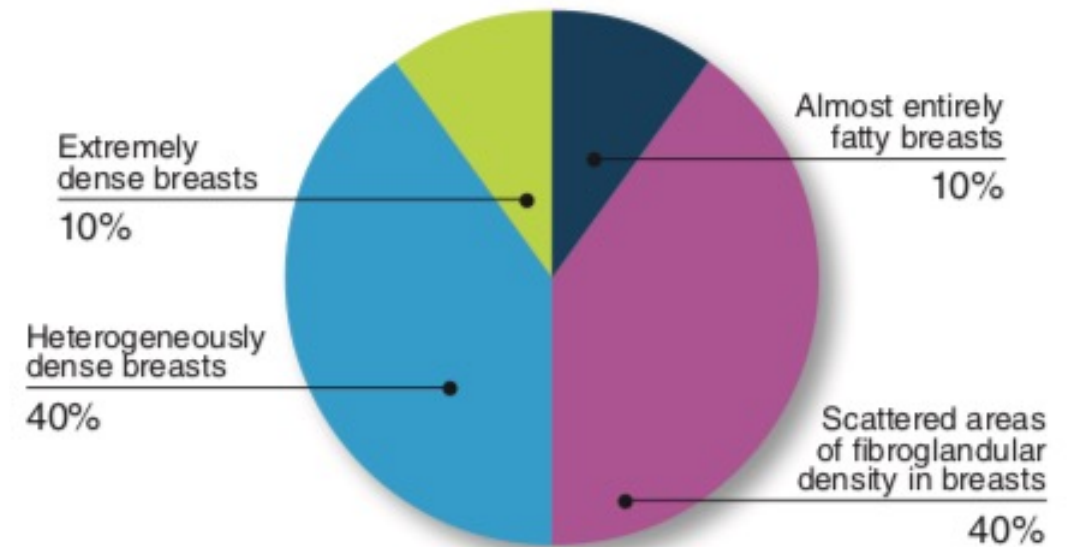
FINDINGS:

No suspicious calcifications, masses, or areas of architectural distortion are identified.

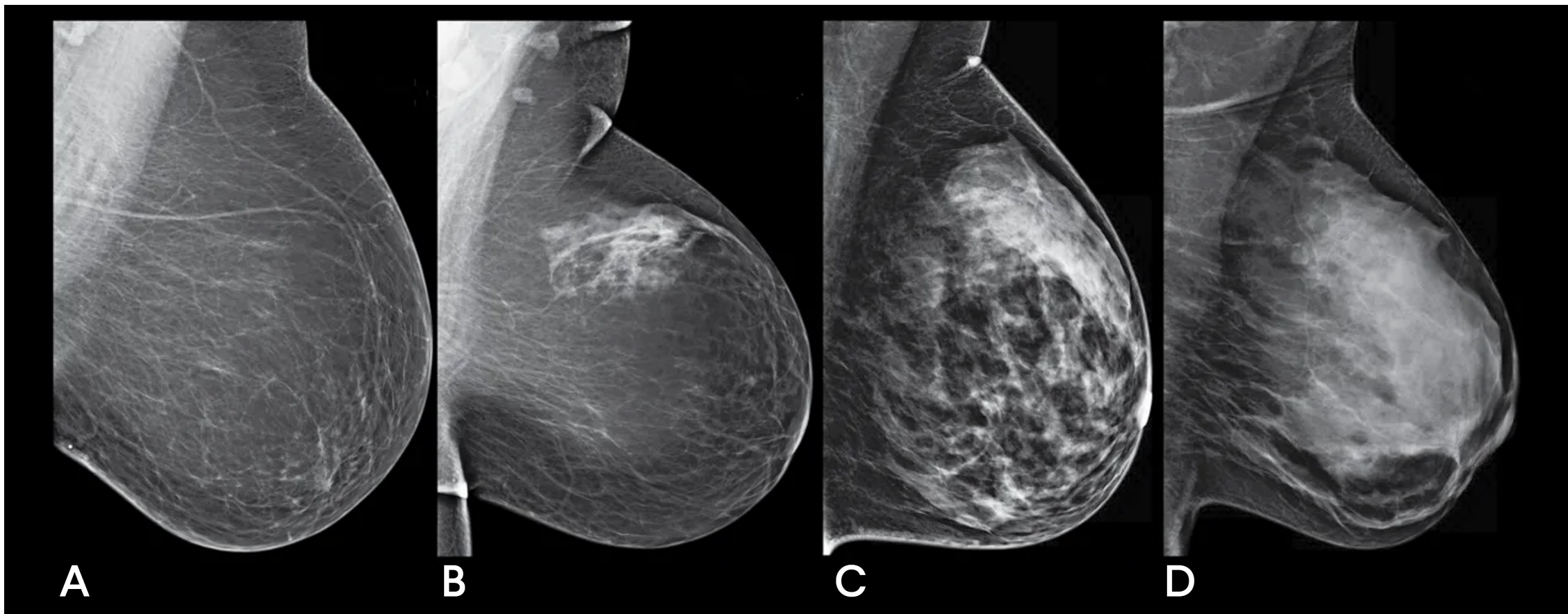
Computer-aided detection was utilized by the radiologist in the interpretation of this examination.

What is Breast Composition?

- Radiologic assessment of density of the breast
- Not a measure of how the breast feels
- Type of breast tissue – fibrous, glandular and fatty
- Breast density can change with time
 - Age
 - Pregnant or breastfeeding
 - Hormone replacement therapy
 - Weight changes
 - Genetic factors



What Is My Breast Density?



A

Almost entirely fatty

B

Scattered areas of
fibroglandular density

C

Heterogeneously dense

D

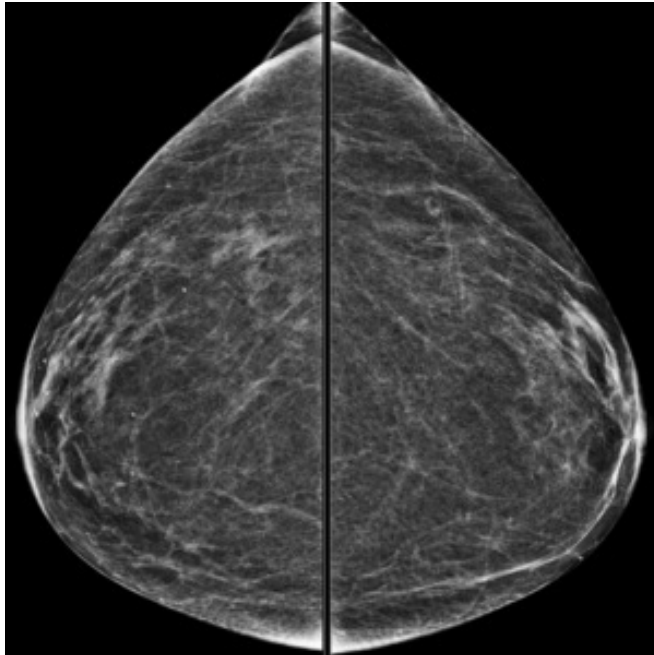
Extremely dense

Why Does Breast Density Matter?

- Dense tissue can hide cancers on mammograms
- Small tumors may be missed
- Independently increases risk of breast cancer
- Laws requiring women with dense breasts be notified so they can choose to undergo supplemental screening tests
 - US and MRI

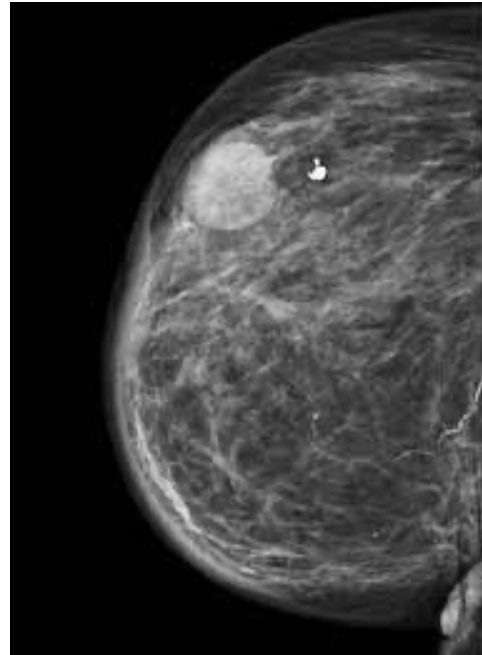


What Do These Findings Mean?



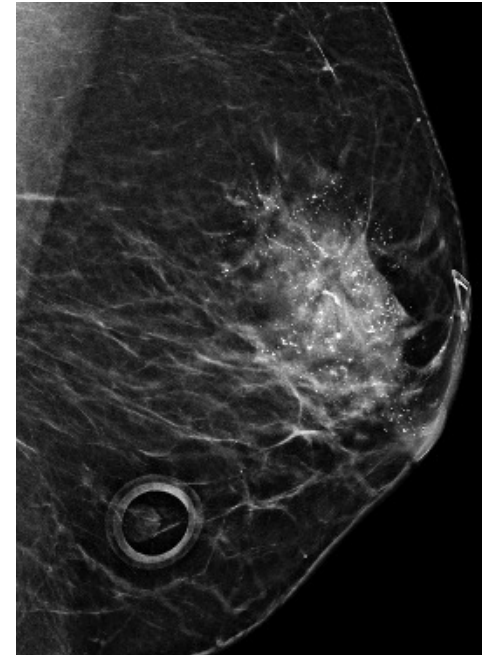
Asymmetry

- Overlapping tissue
- Developing mass



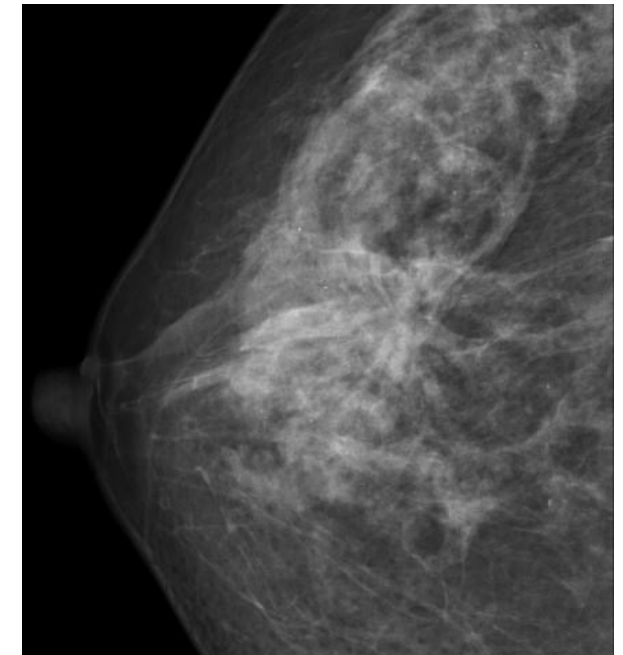
Mass

- Cysts
- Fibroadenomas
- Invasive malignancy



Microcalcifications

- Fibrocystic
- Benign mass
- DCIS / ADH



Architectural distortion

- Post-surgical
- Complex sclerosing lesion
- Invasive malignancy

What is the BIRADS Score ?

Breast Imaging Reporting and Database System (BIRADS)

0: Incomplete – Additional imaging evaluation and/or comparison to prior mammograms is needed.

1: Negative

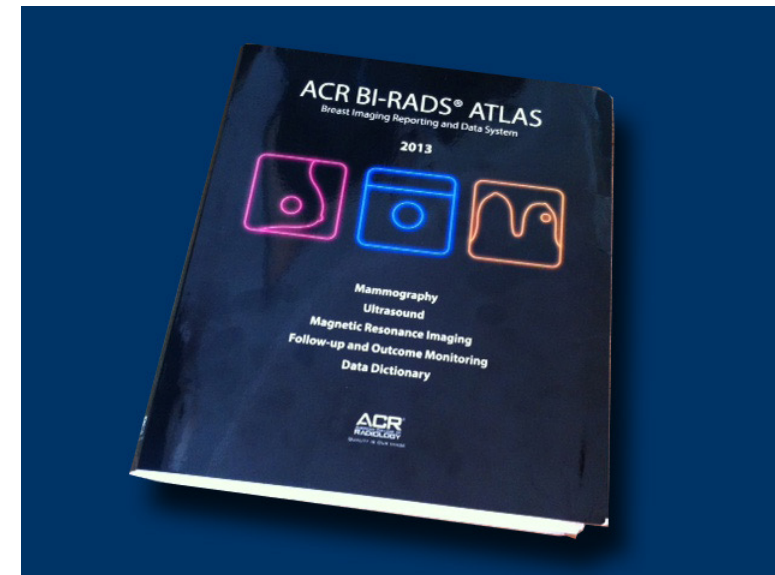
2: Benign

3: Probably Benign

4: Suspicious Abnormality

5: Highly Suggestive of Malignancy

6: Known Biopsy-Proven Malignancy



What Happens After Screening?

Out of every **100** women who get a screening mammogram:

90 will be told that their mammograms are normal



10 will be asked to return for additional mammograms or ultrasounds

6 will be reassured that their mammograms are normal



2 will be asked to return in 6 months for a follow-up exam



2 will be recommended to have a needle biopsy



What If I Have Breast Implants?

- Same screening guidelines
- No increase in risk breast cancer
- Additional views with implant displacement – 4 views of each breast
- Rupture extremely unlikely
- May obscure some breast tissue
- How long after getting implants to get a screening
 - Check with provider
 - Usually at least 6 months



What If I Am Pregnant or Breastfeeding?

- Pregnancy associated breast cancer
 - Incidence of 1 in 3,000 to 10,000 pregnancies
- Mammography is not contraindicated during pregnancy or lactation
 - Fetal radiation dose is <0.03 mGy
 - May be appropriate, especially for high-risk women
 - Increased density and breast vascularity may limit sensitivity

What Are Screening Guidelines For Transgender Patients?

ACR Appropriateness Criteria

- Screening mammogram usually appropriate
 - Transfeminine (male to female) patients with past or current hormone use equal to or greater than 5 years
 - High-risk transfeminine patients
 - Transmasculine (female to male) patients with reduction mammoplasty or no chest surgery, age 40 or older, average and above average risk

<https://www.komen.org/breast-cancer/screening/when-to-screen/>

Should I Delay a Screening Mammogram Due to COVID Vaccination?

- Vaccine-induced adenopathy
 - Reported side effect across all brands
- Society of Breast Imaging recommendations:
 - Do not delay screening mammograms around COVID-19 vaccinations
 - Change from prior recommendation - better information and data
- Follow-up imaging may be recommended
- Notify your technologist at time of screening

Things To Do This Month

- Calculate your annual lifetime breast cancer risk score
- Learn your breast density
- Talk to your provider about the best screening recommendations for you
- Tell your doctor about any new breast symptoms
- Schedule your annual screening mammogram**

Schedule your screening mammogram

(303) 415-5170

BCH offers 3 locations:

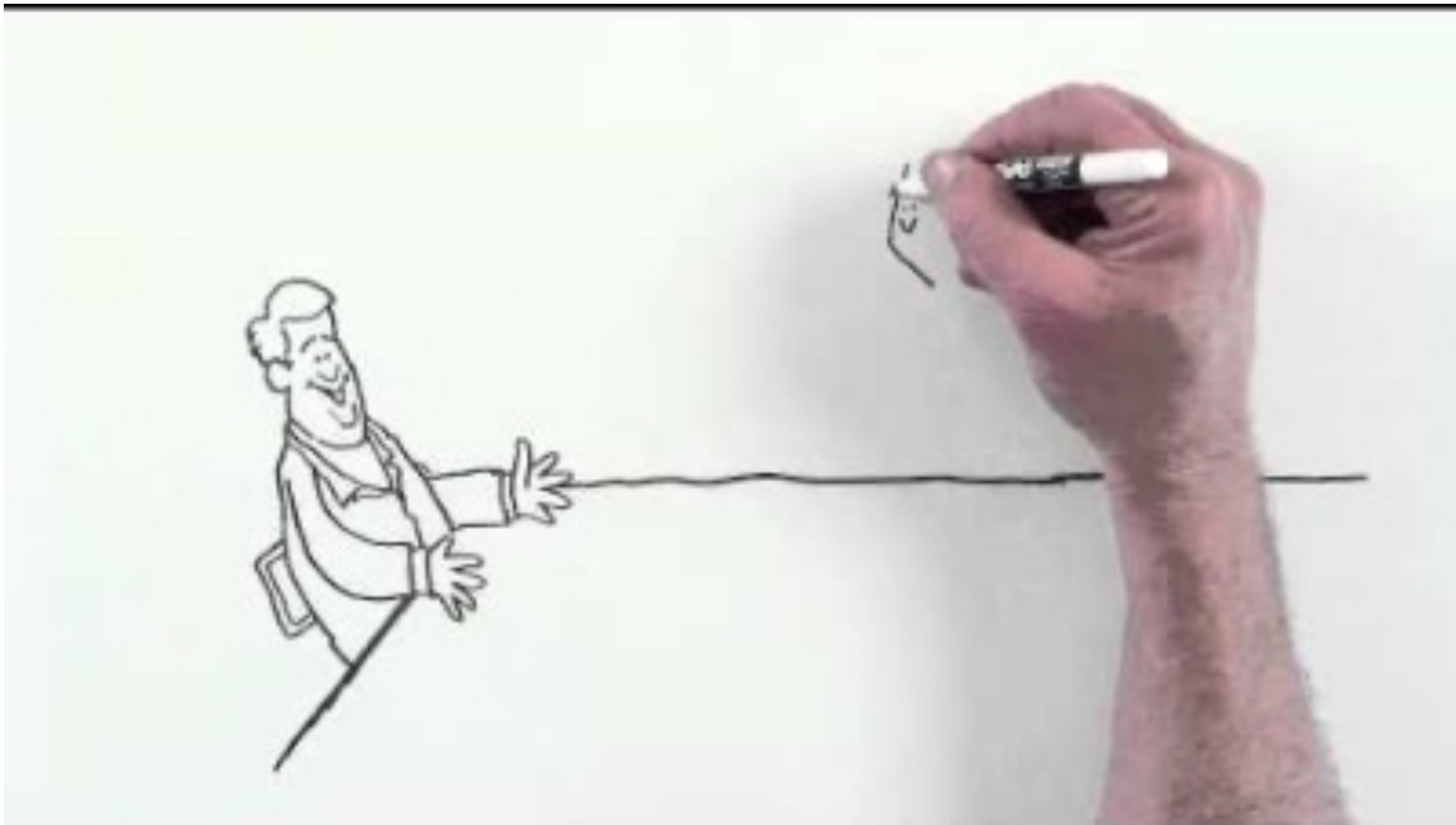
- Foothills Hospital (Boulder)
- Community Medical Center (Lafayette)
- Erie Medical Center (Erie)

All locations designated ACR Breast Imaging Center of Excellence

Thank you to all our amazing mammography technologists!

- [MammographySavesLives.org](https://www.MammographySavesLives.org)
- [EndTheConfusion.org](https://www.EndTheConfusion.org)







Thank You
Questions?

What You Should Know About Screening Mammograms

Catherine Evans, MD
Boulder Radiologists, Inc.



Boulder
Community
Health 