

2018 ACR DM QC Manual

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Disclosures

- None
 - except

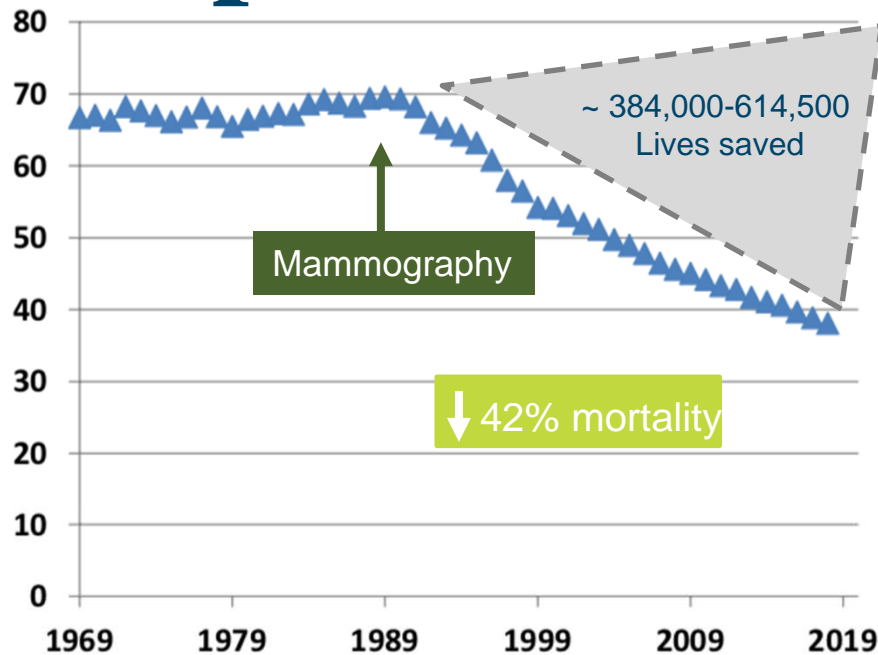
Outline

- Why do we care?
- Important resources
- Big picture
- Tips for switch



Why do we care?

Perspective



Age-adjusted U.S.
breast cancer
mortality rates
(per 100,000)

Women aged 40–84 by year 1969–2015

Tabar, et al. *Cancer* (November 2018)

- 58 years of follow up
- All women had either 10 or 20 years of follow up

Using the same available treatments,

SCREENED women had

60% LOWER mortality at 10 yrs follow up and

47% LOWER mortality at 20 yrs follow up

than UNSCREENED women



This matters.



Resources

For public consumption

The screenshot displays the ACR website's navigation menu. The 'Clinical Resources' link is highlighted with a red rectangular box. Other menu items include 'Advocacy and Economics', 'Lifelong Learning and CME', 'Member Resources', 'Practice Management, Quality, Informatics', 'Research', and 'Log Out'. The 'Log Out' button is highlighted in green. Below the navigation menu, there is a promotional banner for 'Submit Use Case Ideas' with the text 'Be a problem solver. Contribute to AI in Radiology' and a 'Get started today' link. The background of the banner features a glowing blue brain graphic composed of circuitry and binary code.

Enter Your Search

Clinical
Resources

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Economics

Lifelong Learning and
CME

Mem
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Clinical Resources

Accreditation ↗

ACR Appropriateness Criteria®

Breast Imaging Resources

Clinical Decision Support ›

Collaborative Guidelines

Colon Cancer Screening Resources

Contrast Manual

Incidental Findings

Interventional Radiology Resources

Lung Cancer Screening Resources ›

Medical Physics Resources

Practice Parameters ›

Quality and Safety News

Radiation Oncology Resources ›

- <https://www.acr.org/Clinical-Resources/Medical-Physics-Resources>



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Practice Management,
Quality, Informatics

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Medical Physics Resources

These ACR resources, relevant to medical physicists, are both public and member-only and include ACR quality control manuals, ACR Accreditation resources, guidance documents, patient communication tools, and other helpful information.

Quality Control Manuals

[CT »](#)

[Mammography »](#)

[MR »](#)

[Stereotactic Breast
Biopsy ↗](#)

DM QC Manual Resources

- Up-to-date FAQs
- Phantom scoring key (good for teaching!)
- Excel forms for QC tests (tech and med phys!)
- Webinars by Eric (tech and med phys!)
- Approved phantom vendors



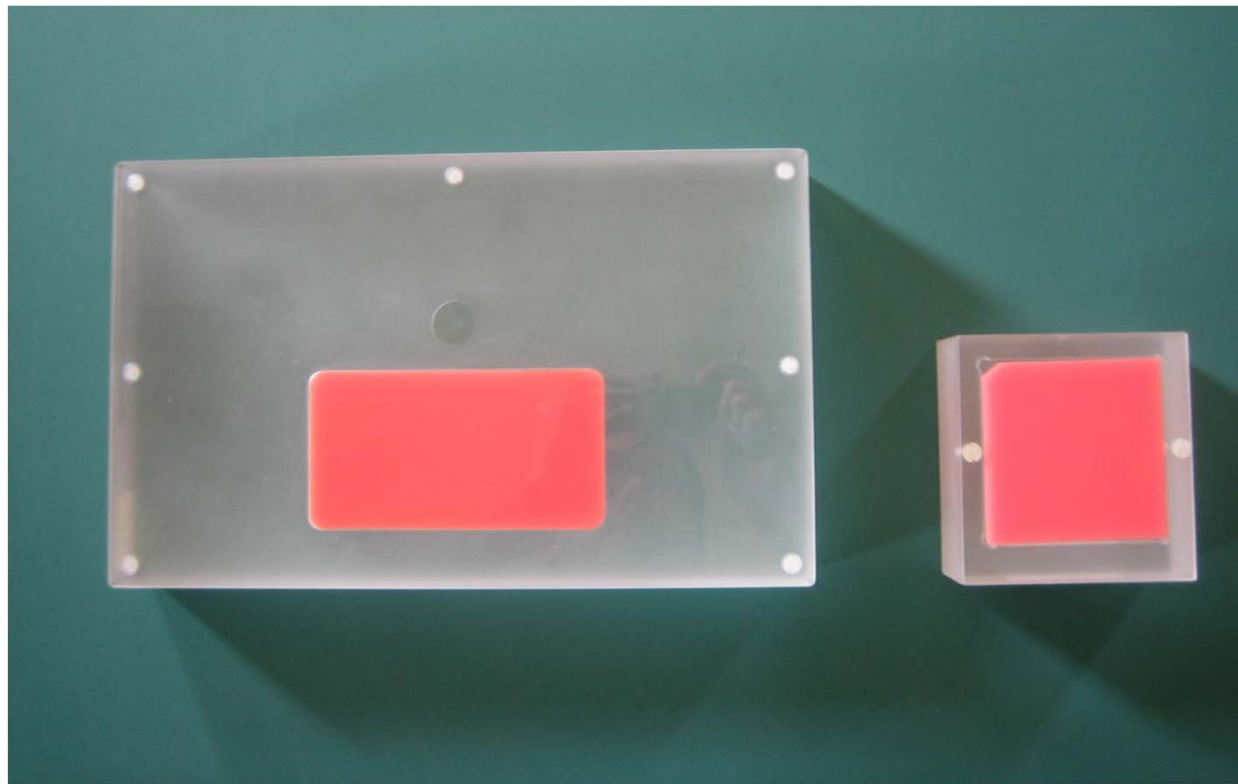
ACR Digital Mammography Phantom Scoring Key*

Test Object	Full Point	Half Point
Fibers (6)	<ul style="list-style-type: none"> • Full length visible (≥ 8 mm long) • Correct location • Correct orientation • 1 break allowed (must be \leq width of fiber) 	<ul style="list-style-type: none"> • At least half of length visible (≥ 5 and < 8 mm long) • Correct location • Correct orientation • 1 break allowed (must be \leq width of fiber)
Speck Groups (6)	<ul style="list-style-type: none"> • 4 - 6 specks visible • Correct locations 	<ul style="list-style-type: none"> • 2 - 3 specks visible • Correct locations
Masses (6)	<ul style="list-style-type: none"> • Density difference visible • Border is continuous and generally circular ($\geq \frac{3}{4}$ border visible) • Correct location 	<ul style="list-style-type: none"> • Density difference visible • Border is not continuous or generally circular ($\geq \frac{1}{2}$ and $< \frac{3}{4}$ border visible) • Correct location
Artifacts	<p>Only fail for artifacts if they are in a location that could impact clinical interpretation and they are clinically significant. Fail if:</p> <ul style="list-style-type: none"> • Artifacts are as prominent as (or more prominent than) the visible test objects in the phantom image, or • Artifacts obscure test objects in the phantom, or • Artifacts could affect clinical interpretation 	

Performance Criteria: ≥ 2 fibers, ≥ 3 speck groups, ≥ 2 masses, no clinically-significant artifacts

* Consult the ACR 2018 Digital Mammography Quality Control Manual and the [FAQs](#) for complete information on scoring the phantom.

Phantom



Purchasing phantom

- Must be from approved manufacturer
- Google “acr digital mammography qc manual resources”
- <https://www.acraccreditation.org/resources/digital-mammography-qc-manual-resources>
- Mfr list at bottom of page

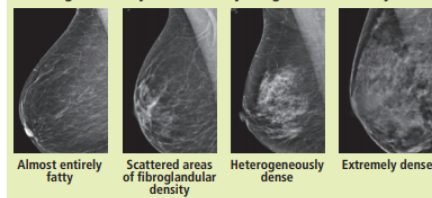
Mammo CME Toolkit

- Material for referrals & radiologists
- Decision aids
- Handouts
- Education videos
- PowerPoint for radiologists to present for CME

How do I know if I have dense breasts?

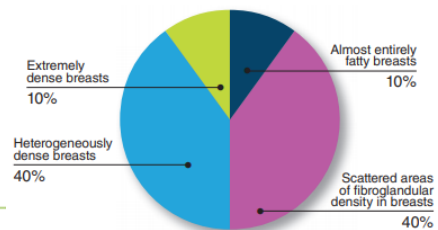
Breast density is determined by the radiologist — the doctor who reads your mammogram. There are four categories of mammographic density. The radiologist assigns each mammogram to one of the categories. Your doctor should be able to tell you whether you have dense breasts based on where you fall on the density scale. (See scale below.)

Radiologists classify breast density using a 4-level density scale:



Breast density in the U.S. (See pie chart)

- 10% of women have almost entirely fatty breasts
- 10% have extremely dense breasts
- 80% are classified into one of two middle categories



If I have dense breasts, do I still need a mammogram?

Yes. A mammogram is the only medical imaging screening test proven to reduce breast cancer deaths. Many cancers are seen on mammograms even if you have dense breast tissue.

Are any tests better than a mammogram for dense breasts?

In breasts that are dense, cancer can be hard to see on a mammogram. Digital breast tomosynthesis (DBT), also called 3D mammography, provides images of the breast in "slices" from many different angles making some abnormalities easier to see. DBT increases the number of cancers seen without additional testing. Ultrasound (US) and magnetic resonance imaging (MRI) can help find cancers that can't be seen on a mammogram. However, both MRI and US show more findings that are not cancer, which can result in added testing.

What should I do if I have dense breasts? What if I don't?

If you have dense breasts, please talk to your doctor. Together, you can decide which, if any, additional screening exams are right for you.

If your breasts are not dense, other factors may still place you at increased risk for breast cancer — including a family history of the disease, previous chest radiation treatment for cancer and previous breast biopsies that show you are high risk. Talk to your doctor and discuss your history.

Even if you are at low risk, and have entirely fatty breasts, you should still get an annual mammogram starting at age 40.



The Big Picture

ACR Accreditation Programs

- Designed by members
- ACR staff: in near-constant contact with chairs

Paradigm emphasis

- 1. Radiologist leadership and oversight
- 2. MD-RT-MP teamwork
- 3. Medical physicist ownership

Demonstrate value

- Re-establish relationships
- Be the go-to resource
- Direct lines of communication

Standardization

- It's good.

Standardization

- Expect cleaner MQSA inspections
- Standardization reduces errors
- No more chasing down mfr manual versions
- Current and future revisions will always be available
- Current and future forms will always be free

Unit MP tests (annual)

- Phantom – IQ & artifacts
- DBT Z-resolution
- Spatial resolution
- DBT volume coverage
- AEC
- Collimation (DBT only)
- AGD (HVL & output)

Pro tips for the switch

- Read the manual
- Read the manual again
- Have a meeting with lead tech, mgr, & LIP to plan
 - BUDGET FOR PHANTOM
- Schedule time to train technologist(s)
- Be the expert – consider this an opportunity

~~Outline~~ Summary

- Why do we care?
- Important resources
- Big picture
- Tips for switch

Acknowledgements

- Thomas Ruckdeschel, MS
 - Chair, ACR Subcommittee on Breast Imaging X-ray Physics
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