

Radiation Safety and Mammography: What Providers and Staff Need to Know



At our practice, we are proud to offer screening mammography services directly in our clinic. We understand that seeing radiation warning signs can raise concerns—especially for patients who are pregnant or those working nearby. This handout explains why mammography is extremely safe, even for those in adjacent areas.

How mammography works

Mammography uses low-energy X-rays (typically 25–30 kVp) to image breast tissue. It is a quick and highly effective tool for early breast cancer detection.

Radiation safety measures

We follow all regulatory guidelines and go above and beyond to ensure safety:

Shielding design by experts: Every mammography room is reviewed by a certified medical physicist who designs and confirms shielding to ensure radiation levels outside the room are well below federal limits.

Scatter radiation is minimal: Test radiation measurements are always taken outside all the walls of the mammography room after the mammography machine is installed and before it is used on patients and consistently show levels **barely higher than background radiation**—even using high-exposure test scenarios.

Exposure time is very brief: Each mammogram image lasts just a few milliseconds. Total “beam on” time per day is often less than one minute.

Less radiation than natural sources: The average person receives more radiation from natural sources (like the sun and radon) each year than from simply being near a mammography room.

What about adjacent rooms and pregnant patients?

The walls of the mammography room are surveyed for proper absorption of scatter radiation. In nearly all cases, **no additional materials (including lead shielding) are needed**. For peace of mind, we sometimes place special radiation monitoring devices in adjacent rooms—and they routinely confirm no measurable exposure.

As mentioned above, even in a worst-case testing scenario using a high-exposure output, where radiation is scattered without a patient present, doses measured outside the room are far below levels known to cause harm to anyone including pregnant individuals.

Modern mammography equipment minimizes radiation scatter, meaning that exposure to areas outside the breast is negligible. Studies have even proven that mammography is safe for pregnant patients because the amount of radiation used is extremely low.

2D vs 3D Mammography

Radiation Dose Comparison			
Modality	Estimated Dose per Exam	Relative to 2D	Notes
2D Digital Mammogram	~0.4 mSv	Baseline	Standard 4-view screening exam.
3D Mammogram (DBT)	~0.5–0.6 mSv	~20–50% higher than 2D	Includes both 2D and tomosynthesis views unless synthetic 2D is used.
3D + Synthetic 2D	~0.4 mSv	Comparable to 2D	Synthetic 2D images reconstructed from 3D data eliminate need for separate 2D acquisition.

All doses are well below FDA limits and less than a year's worth of background radiation (~3 mSv).

Clinical Advantages of 3D Mammography (Digital Breast Tomosynthesis)	
Advantage	Clinical Impact
Increased Cancer Detection	Detects up to 40% more invasive cancers than 2D alone.
Reduced Callbacks	Decreases false positives by 15–40%, lowering patient anxiety and follow-up imaging.
Enhanced Image Clarity	3D “slices” reduce the issue of tissue overlap, helping distinguish benign from suspicious findings.
Particularly Effective in Dense Breasts	Improves sensitivity and specificity where 2D is more limited.
Improved Characterization	Better visualization of masses, asymmetries, and architectural distortions.

For Clinical Staff
Use Only – Not
Intended for Patient
Distribution.

Your safety and comfort are our priority. If you have any questions about radiation safety or how to address patient concerns, please ask a member of the mammography team.

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OR NAME HERE