31 Daily Tips for Breast Cancer Awareness Month

Tip #1: Patient Position

For the CC: Patient in the "Forward" position – both feet, hips and shoulders facing forward, just like for a CXR.

For the MLO: Patient in the "Forward" position. If doing the LMLO, place the tips of your right fingers on the apex of her rib cage on her thorax directly below her left nipple. Then with your left hand on her back and the right hand on the abdomen (as described above) ask her to take a step towards you while guiding her with your hands (you should be on the medial side of the breast being imaged) until the tips of your fingers on the right hand touch the bottom corner of the IR. The corner of the IR will be lateral to the umbilicus and the IMF in front of the IR.

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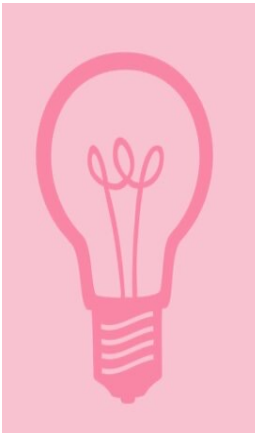
Tip #2: Standing on the medial side for the CCs



WHY?

- Gives you better visualization of the medial tissue. If you miss breast tissue on the MLO, it will be medial.
- You don't have to reach across the patient, or walk around the other side to lift the contralateral (other) breast onto the image receptor.
- Is more ergonomically sound, less reaching and walking around the patient (see above).
- Allows you to "anchor" the breast you are imaging and then use your free hand to lift the other breast and bring your arm around the patient to keep her 'pushed' forward with your hand on her shoulder relaxing it.
- Allow you better eye contact with the patient. I always say patients tell you more with their faces than they do with their mouths. Especially now when all are wearing masks.
- It's soooo much easier. IMO ☺ For those of you who are lateral standers I invite you to give it a try. It may be awkward at first, but I promise you, it IS easier and gets you better images, which is the real goal.

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Tip #3: Nipple in profile

The **Standard of Care** is that the nipple must be in profile **on one of the two screening views** unless there is a question of a subareolar mass.

Recent studies show that additional views done to visualize nipple in profile on both views did not show an increase in cancer detection.

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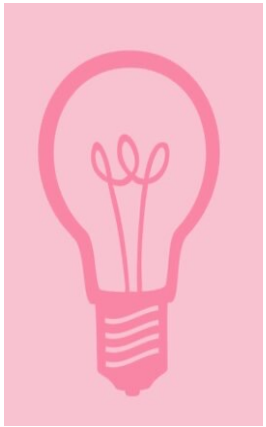
Tip # 4: Nipple not centered on the CC



- Make sure the patient is in the Frontal position with the nipple over the center of the IR.
- Check to see that the nipple stays centered when pulling the breast on with both hands.
- If the patient has prominent medial fullness, **do not turn the patient or breast in order to center the nipple.**
- An additional XCCL could be performed to center the nipple and to include more **lateral** breast tissue. It will now look like a CC but must be labeled XCCL.
- A CV view could be performed to center the nipple and to include more **medial** breast tissue. It will now look like a CC but must be labeled CV.
- **Breast tissue should never be sacrificed to center the nipple or to visualize it in profile.**

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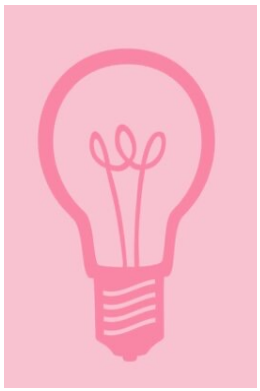
Tip #5: Pec on CCs



While there are several steps necessary to perform a good CC, increase the PNL and improve the chance of visualizing the pec muscle, the following step are most important:

- **Pull the breast on with both hands**
- **Anchor the breast** at 12:00 **on the chest wall, with the base of your thumb**
- Do not remove your hand from this position until you **start compression**.
- As the compression paddle comes down, **slide your hand forward** (towards the nipple) with the base of your thumb pulling posterior, superior breast tissue forward

Remember that despite your best efforts, data shows that **pectoralis muscle will only be seen on approximately 48-50%** of all patients.

What are your numbers?

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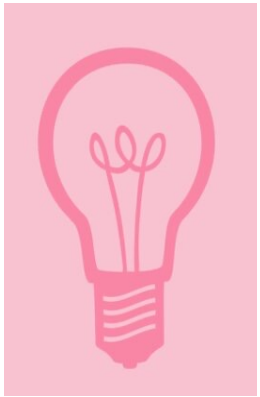
Tip #6: Visualization of the Cleavage



- Patient should be in the **Frontal position** for the CC.
- Imagine you are doing the left breast: the base of your **right** thumb is **anchoring the left breast at 12:00** against the chest wall.
- Insert your **left index finger** into the IMF on the **lateral side of the right breast** (like a trigger finger) against the ribcage.
- With your left thumb on the top of the right breast, **lift the right breast up and onto the IR** while turning the patient's right hip forward (she has probably "drifted").
- **Push the patient forward** with your left elbow/hand in her mid thoracic region.
- **Data** shows that the cleavage should be visualized on the CC approx. 34% of the time on DBT.

What are your numbers?

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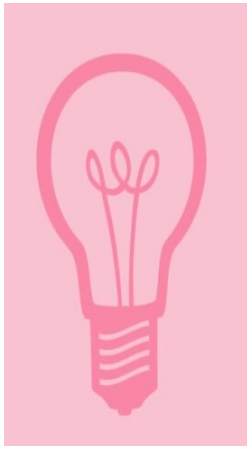
Tip #7: Folds on CC



Skin/fat folds are often seen at the base of the breast, close to the chest wall. They can be decreased by:

- Making sure the breast is free of prominent folds before compression
- Smoothing them out with your fingers

Many times, these "folds" are related to the **attenuation of the beam** (a bright spot/line) which is inherent in the digital algorithm and cannot be eliminated.

Also remember that these lateral folds will most likely not be present in the posterior lateral aspect of the breast on the MLO view so this area of the breast will be clearly visualized without folds.

The use of DBT should eliminate the need for unnecessary additional views as the folds can be easily scrolled through.

Data shows that **folds are seen on 47% of all CCs,** the majority of which are in the lateral breast.

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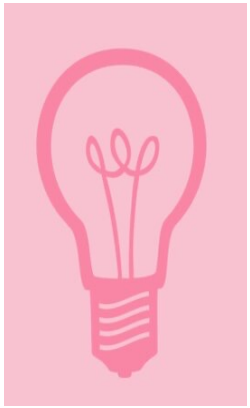
Tip #8: Folds on MLO



Skin/fat folds are often seen in the lateral breast most likely due to not smoothing out the lateral breast tissue as you place the lateral thorax against the IR. If the folds are vertical on the MLO, they are in the lateral breast. They can be decreased by:

- Making sure the breast is free of prominent folds before compression by sliding the edge of your hand down the lateral side of the breast as you place the patient against the image receptor.
- If folds are seen in the axilla this may be unavoidable due to the patient's anatomy (a 'crepy' axilla).
- Folds in the IMF are many times unavoidable but can be decreased by asking the patient to lift and flatten (NOT pull back!) her opposite breast.

The use of DBT should eliminate the need for unnecessary additional views as the folds can be easily scrolled through.

Data shows that **folds are seen on 62% of all MLO images.**

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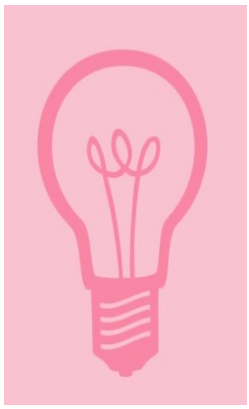
Tip #9: Visualization of the Pec on the MLO



There are several characteristics of the pec muscle that assure us that we have maximized visualization of breast tissue. The percentages are based on data published in AJR, 2017.

- **Width**: Wide margin at the axilla - **93%**
- **Length**: Visualized to the level of the PNL - **87%**
- **Shape**: Convex – **26%**
  Straight – **46%**
  Concave – **28%** (not considered optimal)

What are your numbers?

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Tip #10: Angle for the MLO

- 35 degrees for reduction mammoplasty and mastoplexy (lift)
- 40 for heavier patients with large, heavy breasts
- 45 for average patients
- 50 for thinner patients with small breasts

I always use 5 degree increments as I don't believe that less than 5 makes a visual difference. It makes sense to me that keeping the angle the same from year to year will make images look for similar and consistent and thus aid in interpretation.

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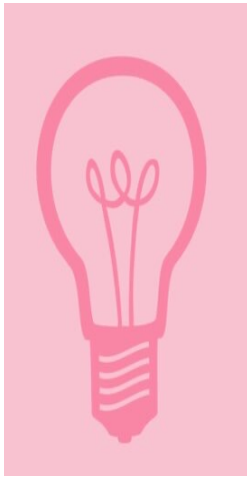
Tip #11: Wide margin of pec on MLO



One study shows that 93% of the time the pectoralis muscle should be visualized with a wide margin in the axilla. There is no data that tells what exact measurement, but I always use this rule of thumb:

The muscle at the axilla should take up at least half of the space between the skin and chest wall and should be wedge shaped.

No science to support me here….just what I have observed. Obviously, due to body habitus, it may be impossible to achieve this (7%) so be sure, as with the concave muscle, to compare with previous. But there are a couple things you **can** do to get a wider muscle:

- Make sure that the **front** corner of the IR is placed just anterior to the latissimus dorsi. Do not place it behind the pec., it needs to be further back in the axilla.
- If the IR is placed properly, make sure the patient does not "pull out". This can be done by making sure to keep her shoulder forward. If you are doing a LMLO your left hand should be around the patient gently pushing her left shoulder slightly forward, if possible. If you can't get your arm around the patient as described **give her verbal instructions** asking her to not pull her shoulder back.
- If the patient has a narrow or "thin" axilla, try placing the front corner of the IR behind the lat. You may get a few more folds in the axilla, which you can try to remove with your fingers after compression but will get a much wider muscle.

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Tip #12: Concave pec on the MLO

The most recent version of the ACR Manual that addresses positioning standards (1999) states that the shape of the muscle should be convex (bulging forward) or straight. If the muscle is concave:

- Check to see if this is chronic (visualized on multiple past studies). It could be congenital.
- If not congenital, the concave appearance is due to the shoulder being elevated. This is caused by:
  a. **IR too high**. Should be halfway between the top of the shoulder and axillary crease
  b. The IR is at the correct height, but **the patient has raised her shoulder** on the side you are imaging.

Make sure to keep her shoulder relaxed and down. If you are doing a LMLO, your left hand should be around the patient gently pushing her left shoulder down and slightly forward, if possible. If you can't get your arm around the patient as described **give her verbal instructions** about keeping her shoulder relaxed and slightly forward.

Fun tip: Sit or stand up straight. Put your right hand across your left chest like you are doing the Pledge of Allegiance. Your chest wall should feel convex (unless you have a congenital abnormality.) Now raise your left shoulder up. Do you feel your chest wall? It's concave? Right? That's is what you will see on the MLO if the shoulder is elevated, either by IR being too high, or patient raising her shoulder.

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Tip#13: Excessive axillary folds on MLO

This is often a problem for patients who:

- Have 'hollow' or "crepy" armpits
- Are very thin
- Have immobile, hard breasts
- Have had a lumpectomy on the lateral part of her breast

Normally the corner of the IR should be placed just in front of the latissimus dorsi. With these patients try placing the corner of the IR **behind the latissimus dorsi.** This creates a more uniform thickness for better compression and decreased folds.

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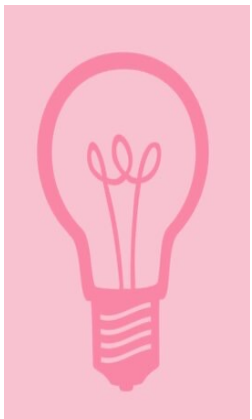
Tip #14: The Use of XCCLs



- XCCLs should be done on **baseline** exams **in** which posterior, lateral, **glandular breast tissue extends past the edge of the image**
- On subsequent screening exams, if the MLO visualizes glandular breast back to the retromammary fat space **an XCCL is not needed.**
- The only data published (1999) on the use of XCCLs showed that XCCLs were only necessary in less than10% of all screening exams.
- More realistic and current expectations indicate that XCCLs are needed in **less than 3% of all screening exams.**
- Some technologists are unnecessarily performing them on too many patients!

WHAT ARE YOUR NUMBERS??

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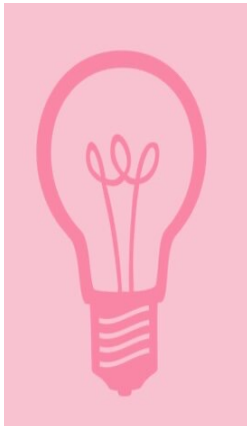
Tip #15: Positioning for the XCCL



The XCCL is used to visualize the lateral, posterior portion of the breast. It visualizes the breast in the transverse/axial plane and thus a variation of the CC view. Therefore, proper positioning is imperative.

- This is the **only time in positioning** that the **patient will turn at a 45 degree angle to the IR.**
- The breast such be positioned as for a CC but this time, with the patient turned so **the nipple will be pointing towards the opposite side of the breast being imaged**. (i.e., if performing a LXCCL the nipple will be pointing towards the right, upper corner of the IR.)
- **Neither the tube nor the patient should be angled**. Tube at zero degrees, patient standing upright**. Do NOT lean the patient** into the side being imaged. Failure to do so will produce an image where the beam is more medial to lateral vs cranial to caudal and produce an image that is **not** a variation of the CC.
- Visualization of the pec muscle on the XCCL **is not a criteria for proper positioning and in fact can indicate the patient** was "angled/leaning" and thus **incorrectly positioned.** This will cause a distorted perspective when evaluating the location of a lateral, posterior lesion in a CC (or variation thereof, i.e., XCCL or CV).

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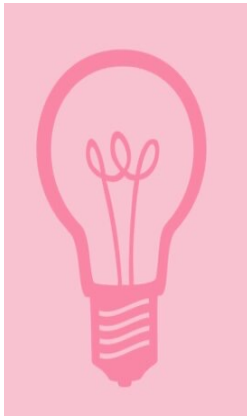
Tip #16: AT (Axillary Tail) View



This is probably one of the most misunderstood, misused and improperly performed of all mammographic views. This is also a view that I rarely use(d), teach or recommend.

- An AT is **not an extension of an XCCL.**
- The direction of the beam is **anterior to posterior at approx. 30 degrees** angulation depending on body habitus. (There is a correct illustration in the 1999 ACR Manual)
- Due to the direction of the beam, this **is not** a less steep MLO where the beam is medial to lateral.
- It **will not** show you the location of an area of concern either medial or lateral to the nipple or superior to inferior.
- Is used solely as a view that gives you **focal compression of the axillary tail.**

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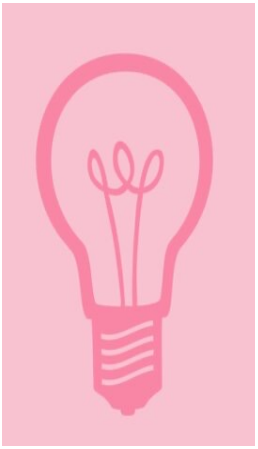
Tip #17: LM vs ML



- If an area of concern is seen in the **far lateral** part of the breast on the CC and a lateral is requested, you could do a **ML**
- If an area of concern is seen in the **central or medial** aspect of the breast do a **LM**
- If using a lateral to **overcome superimposition** of structures seen on an MLO but not on the CC, do a **LM**.

If I have a choice, I always do a LM. Why?

1. It's easier as you are compressing using the lateral border of the which is mobile

2. It is easier because the contralateral (other) breast is not in the way.

3. When performing a MLO if you miss breast tissue it will be medial. Performing an LM properly (by off setting the width of the image receptor against the other breast), you can visualize deep medial breast tissue which may otherwise be missed.

4. If the area of concern is located centrally on the CC, or even slightly lateral, by placing the IR slightly away from the area of concern you might get a slight degree of magnification without compromising detail. Remember that an area of concern seen laterally may compress out to be in the center in a 4 cm breast. It is not like a skull x ray and bone which measure out to be 20 cm where you want to place the injured side next to the IR for better detail. This is soft tissue that compresses to an average of 4cm. So, for the reasons above I would do a LM.

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Tip #18: Tangential views (TAN)

The use of tangential views to verify the existence of dermal calcifications and/or project a palpable mass over more radiolucent fat **has diminished greatly** due to the use of DBT and US.

- The thing to remember is that these views are **not** TAN CCs or TAN MLOs etc. They are their own views and simply labeled L or R TAN.
- For step by step directions on how to perform a TAN view see a full description on our Resource Page: (www.mammographyeducators.com)

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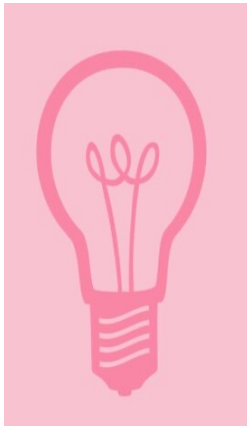
Tip #19: FB, LMO, SIO



These views are mentioned and tested on (in licensure exams) but I rarely use(d) them, teach them or recommend using them. This, as with other tips, are based on my opinion and experience.

- **FB:** not even for kyphotic patients. Only used for a loc of an area seen at 6:00.
- **LMO:** so awkward and hard to perform, ergonomic nightmare. I need a calculator to figure out the correct angle! There is no magic here: Do a LM instead.
- **SIO:** if you want focal compression of a lumpectomy in the LIQ you can do a LM and get the same result. Most techs haven't been taught how to position this properly as they angle the tube **and** the patient so then it is really just an angled LM after all.

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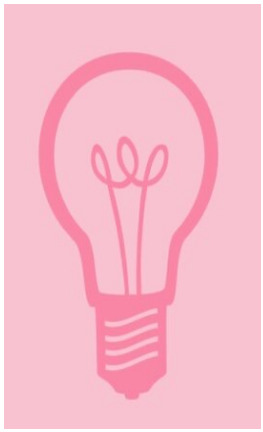
Tip#20: Silicone Injections



Technologists can often be frustrated when patients with silicone injections present for a mammogram because:

1. The mammogram is considered almost impossible to interpret due to the presence of the silicone and resulting obscuration of breast tissue so we think "why do it?" but hat is not our decision.
2. The breasts may be very hard and tender. The mammogram may even be painful for the patient which makes compression even more difficult and further decreases image quality.
3. Patients may provide misleading or incorrect information regarding the use of silicone to augment her breasts.

Suggestions:

- A written departmental policy and procedure should be established stating the protocol for imaging these patients. That protocol should be communicated and known to all breast imagers (radiologists, technologists, sonographers, MRI techs).
- The image protocol may include mammography, US and/or MRI.
- Please consider that many patients may have private issues (unknown to breast imagers) so it would be inappropriate to judge or comment on the patient's choices and/or lack of disclosure and any misinformation she provides.
- Always maintain compassion for these and all patients.

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Tip#21: Breast Reduction

When performing mammograms on patients who have undergone reduction mammoplasty or a mammopexy (lift):

Use a 35 degree angle on the MLOs. This will increase visualization of the pectoralis muscle. When the breast was lifted on the chest wall (which occurs in both procedures) the medial, inferior portion of the muscle will, most likely, be excluded. The lesser degree helps to compensate for this.

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Tip #22: Imaging Transgender Patients*

Screening Guidelines:

- **Transgender woman with more than 5 yrs of hormone tx:** Biannual screening beginning at age 50
- **Transgender man without top surgery**: Annual after 40
- **Transgender man who has undergone top surgery**: Clinicians should engage in dialogue with patient about unknown risks.

*UCSF Center for Excellence for Transgender Health.

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Tip #23: Use the machine design to your advantage!

Many ergonomic changes have been made to the resent equipment designs. If you have them….use them to your advantage!

- Push the face shield back, especially when positioning for the MLO.
- If you can move the tube head when positioning for MLO, do it!
- Use foot pedals whenever possible, especially to activate the collimator light!
- Keep foot pedals directly under your feet. No lunging!

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Tip #24: Changing compression paddle size from CC to MLO

If the patient has a wide, large breast and a shorter thorax, you might want to consider using the large paddle for the CC and switch to the small paddle for the MLO.

- This will eliminate visualization of a large amount of abdominal tissue.
- Visualization and compression of excessive abdominal tissue may compromise compression of the anterior breast tissue.
- Superior breast tissue will not be compromised if the top edge of the compression paddle is placed directly below the medial aspect of the humeral head.
- While the length of paddle will be less, the depth of the paddle (anterior to posterior) will not change so no need to worry about excluding anterior breast tissue (unless the breast has to be tiled).
- I can find no documentation that says this is not advisable.

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Tip #25: Use proper hand position for the CC to avoid wrist/hand injuries.

Many technologists suffer pain and injury to their hands and wrist after performing mammography over time. This can be reduced, avoided or eliminated by using proper ergonomics when positioning for the CC:

- Stand on the medial side of the breast being imaged.
- Keep your hands flat when pulling the breast on – use your palms, not your fingers.
- Anchor the breast with base of your thumb at the 12:00 position. Your thumb should be relaxed and slightly parallel to your index finger.
- Your thumb should NOT be anchoring the medial breast!
- Pictures and instructions of ergonomically positioning techniques can be found on our Resource page (www.mammographyeducators.com) There is an article on the topic published in the SBI Newsletter this year.

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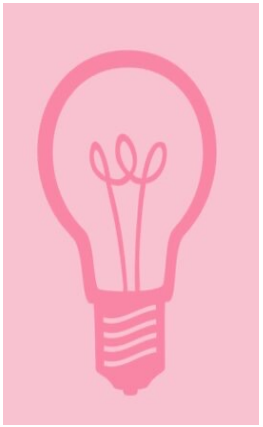
Tip #26: Use proper ergonomics for the MLO to avoid multiple injuries



Many technologists suffer pain and injury to many body parts (especially shoulder problems!) after performing mammography over time. This can be reduced, avoided or eliminated by using proper ergonomics when positioning for the MLO:

- Stand on the medial side of the breast being imaged.
- Keep your hands flat when pulling the breast on – use your palms, not your fingers.
- Your thumb should be relaxed and adjacent to your fingers.
- Your thumb should NOT be anchoring the medial breast!
- Pictures and instructions of ergonomically positioning techniques can be found on our Resource page (www.mammographyeducators.com) There is an article on the topic published in the SBI Newsletter this year.

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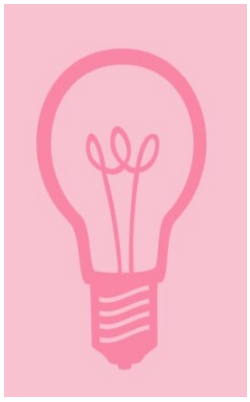
Tip #27: Terminology for patients



Use terminology the patient understands:

Instead of saying 'CCs or MLOs' say: *some from the top to bottom and some from the side.*
Don't tell her how many images (i.e. 4): Try saying "*we're going to start with **some** pictures from the top to bottom and then side to side. I will check and see if I need to do more as we go along.*"
Instead of saying 'mag views' say: *"Images that use this stand and this smaller paddle* (show her both) *to get a more detailed picture of your breast."*
Don't tell them the name of the additional view you are doing, i.e. XCCL. Tell her that "*I need to get an extra picture to include more breast tissue on the outside or inside of her breast* (vs lateral or medial) and/or *from the side."* (90 degree lateral) Show her!
If you have to change paddles to the are larger or smaller size say "*If you wouldn't mind stepping back a bit, I need to make an adjustment with the machine.*"

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Tip #28: Submitting US Images for Accreditation

(Please pass on as appropriate)

- Make sure you upload **BOTH** the **non-annotated** mammogram DICOM images **AND annotated** images **with a circle around the target in two projections**
- **READ** directions and follow precisely
- Supplemental **Tomo slices allowed as directed in instructions**
- Failure to do the above steps will result in the case being **returned and not reviewed**.

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31 Daily Tips for Breast Cancer Awareness Month

Tip #29: Dealing with Stress

- If you are having a **"one of those" days,** log onto the QBI FB page and read many posts where technologists share wonderful stories of how they made a difference in someone's (or many people's) lives. Look at all the survivors. (Many us of are mammo techs!) We, including me, are most likely survivors because of the work that **YOU** do.

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Tip #30: Be Proud of What You Do

Just a reminder on this day, probably in the middle of a hectic schedule, stop and think of the countless lives that have been saved by mammography. You should **be proud of who you are** and the **work that you do**.

Everyday you are:

- Offering compassion and care
- Teaching and Motivating
- Helping and Healing
- Saving lives

THANK YOU FOR ALL YOU DO!

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Tip #31: Practice gratitude

- **Thank your patients for coming in**, especially if she tells you how much she hates mammograms.
- Be thankful for those **radiologists and technologists who have dedicated their careers (and probably most of their lives) to improving breast imaging**. Among the "pioneers" **Drs**: Kopans, Tabar, Sickles, Linver and so many more. **Techs:** Rita Heinlein, Debra Diebel, Margaret Botsco, Pam Fulmer, Marcy Adcox, Kathy Willison, Ginny Wentz and so many more. **Honorary techs:** Dorothy McGrath and Cathy Coleman, RN, PhD. SO many good people!
- Thank those who have helped you be a **better mammographer**.
- Be grateful for having **work that is meaningful** and that you have a passion for. Not everyone is so lucky.
- **Thank you, from me, for being open and receptive** to trying these tips that will hopefully improve your images and lighten your Spirit!

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