# Change the Patient Experience. Change the Conversation.

This is serious business. It is our aim to save lives thru screening mammography. There is no other reason to endure the ongoing controversy. With this as our goal there is a need to address the reluctance of women to embrace mammography.

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## The reason for, and value of, mammography

Beginning in the 1960s, with the growing interest in early detection, the professionalization of radiology and cancer activism, [plus] the increasing allure of visual imagery in medicine, screening mammograms became the centerpiece of efforts to lower mortality from breast cancer.[1]

The value of annual screening for women over the age of 50 was substantiated in the 1980's with the publication of the 18-year results of the New York Health Insurance Plan of Greater New York trial. This trial identified a 25% reduction in mortality for women age 50+ who screened annually.

A 2015 study addressed the effect of missing annual screening intervals. The statistics were concerning. Missing just one annual exam over a 5-year period increased the risk of all-cause mortality by 2.3 fold with a progressive increase as more were missed.[5] Most centers send out annual recall reminders in the belief this will enhance early stage breast cancer detection.

Detractors of annual screening mention false-positives and recall rates as the negatives. But annual mammography have also been reported as a means to reduce false-positives, as ... most FP's occurred in women who came in intermittently, perhaps because of the absence of recent mammograms that might have ruled out biopsy.[6]

With the advent of 3D, recall rates are now declining as our cancer detection rates are increasing. In a 2012 study out of Brown University, the screening recall rate decreased by 31% once DBT was combined with digital [2D] mammography while cancer rates increased.[7]

**Despite continued marketing of our technology advances, women have always been and are still reluctant to accept mammography with open arms. Why?**

Why?

## Better safe than sorry...

In our enthusiasm to save lives we may be part of the problem. We have scared women into compliance selling early detection as their best protection – a "better safe than sorry" approach. They should just do it because it's the right/ smart thing to do.

**In 1988,** Daniel Sullivan, MD, Head of the Mammography Section at Duke University stated,

*"Mammography screening is the single most effective way to detect breast cancer and reduce cancer deaths. This fact alone should encourage women to have screening. It could save their lives".*[8]

Times have not changed. A May 2017 European Journal of Cancer Care explains, "Most of the [screening] participants perceived the threat from breast cancer to be substantial, in terms of both its frequency and severity. ... [They] felt that it would be churlish or irresponsible to refuse the opportunity to be screened."[9]

This places a woman in an untenable position if she does not participate in the recommended screening interval. Leonard Berlin, MD, medical legal expert, noted **guilt as one of the emotions experienced by women who "refused or for other reasons have been unable to undergo mammography."** A 43-year-old woman who had developed breast cancer lamented she had not had a mammogram in the previous 3 years.

*"I honestly believe it could have been caught earlier. I wouldn't have had to spend a year of my life going through what I did if I'd been more conscientious."*[10]

This woman's reaction reiterates the need to address the cause of this avoidance of the benefits of early detection.

## Scared to 'death'...

Screening mammography is highly impacted by psychosocial fears - fear of loss of life and fear of a loss of femininity, which may also affect her significant intimate relationships now or in the future. It is similar to a primal fear.

Primal fear is defined as a fear that reaches so deeply inside us that it is unlike any 'ordinary' fear. **Experts agree that the fear of breast cancer is unlike any other,** ...a traumatic fear of the impact of a breast cancer diagnosis on a woman's self-image altering her body and the ways she self-identifies as a sexual being.[11]

**For our screening population the greatest detriment in participating in mammography is fear of being diagnosed with breast cancer.** Samantha Peig in Don't Be Afraid of Breast Cancer wrote:

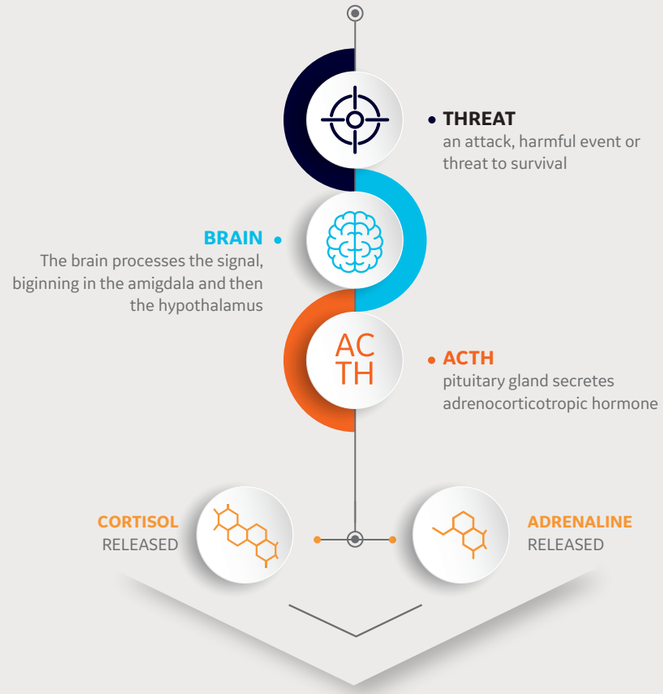
*"The most dreadful of all diseases to a woman is breast cancer. The problem of breast cancer is a double one: the cancer itself and, perhaps equally important, the fact that the breast is involved. The specter of this disease hovers like a black cloud over all her thoughts and hopes. In short, a pathological national anxiety bordering on hysteria has come into existence in regard to the breast."*[12]

**Dr. Karl Albrecht**, noted pioneer in the development of stress-reduction training for professionals, notes 5 types of fear: extinction, mutilation, loss of autonomy, rejection, and worthlessness.[13] Breast cancer fear can include all of these.

*"A breast cancer diagnosis impacts our patient's experience with, and ultimately her ability to tolerate the compression. Her body shifts all of its energy resources toward fighting off a life threat [breast cancer], or fleeing from an enemy [compression] – the fight or flight response. This causes constriction of blood vessels leading to muscle tension throughout her body."*[14]

Although it is the body's way of guarding against pain and injury, unless the patient is able to control this reaction prior to compression it leads to greater tissue discomfort with optimized pressure earning us a reputation for inflicting pain.

### The Fight or Flight Response




*Graphic explaining the fight or flight response in humans.*

## *The elephant in the room*

*Mia Freeman explains In Scared To Get A Mammogram "Sometimes it feels like breast cancer is an epidemic.*

***There's nothing quite like sitting in a room full of anxious women pretending to be nonchalant.***

*As I begin to type this, I'm doing just that. It's not so hard for me, the pretending. I've had a lifetime of practice disguising my anxiety. Today we all sit here quietly, waiting for our names to be called, with the "spectre" of breast cancer hanging heavily over our heads. The many, many women we all know who have sat in waiting rooms just like this only to hear bad news. Celebrities. Friends. Mothers. Aunts. Acquaintances. Grandmothers. Fellow school mums. Neighbours. Sisters.*
*I stumble into the street in a bit of a daze, shaken and exhausted and thinking about all the women who won't be fortunate enough to get the all clear today.*

*https://www.mamamia.com.au/scared-to-get-a-mammogram/*

## Positioning impact

The ultimate threat is when her fear affects her ability to cooperate with the exam, undermining the technologist's ability to obtain optimized images, and the interpreting physician's ultimate ability to find cancer in the presented images. Enticement strategies need to be adjusted according to the patient personality and body type.  Not an easy job and can cause burnout for even the most dedicated mammography technologist.

The 1999 ACR QC manual validates that no matter our approach,

*"Due to the body habitus and the ability of the patient to cooperate it is not possible to obtain ideal positioning on every patient."*[15]

Although this provides a reality check on positioning adequately with every patient, the lack of obtaining a maximum amount of tissue in the appropriate position will indeed lead to a decrease in sensitivity.

In a 2002 study, the "sensitivity [of mammography] dropped from 84.4% among cases with passing positioning to 66.3% among cases with failed positioning" ...interval-detected invasive cancers were more likely after images failed positioning. [16]

A study conducted by PIAA (Physician Insurer's Association of America) indicated that accepting even borderline images could impact sensitivity. The study also found that radiologists were the top physician specialty named in breast cancer claims. [17]

In 2015, the most recent year of published data, almost 80% of all American College of Radiology unit accreditation failures were due to positioning. In Texas a whopping 100% failed for clinical image deficiencies.

The FDA's Center for Devices and Radiological Health, in a 2017 MQSA Insights article, explained,

*"poor positioning is the cause of most clinical image deficiencies and most failures of accreditation, [and] ...remains the Achilles heel of Mammography".*

It is now the focus of the new FDA imposed Enhancing Quality Using the Inspection Program (EQUIP) mandate. [18]

## Technologists feel the stress

It is a challenging modality – a "touchy" career – figuratively and emotionally. Women transfer the fear about the big "C" - breast cancer - and instead bring their focus on the hate/fear/pain of the other big "C" - compression. This has not changed since we began performing screening mammograms. Client and Practitioner Perspectives on the Screening Mammography Experience C82 indicated: "Practically everyone that you speak to who has previous experience of it finds it an unpleasant thing."[19]

**The interaction of the mammography technologist with the patient is the key to the ultimate conclusion of a successful exam.** This fact is validated by a 2015 study showing, "The technologists had a statistically significant effect on the radiologists' recall rate, sensitivity, specificity, and CDR for both SFM and FFDM (P values <.01). Thus, interpretative performance of radiologists in screening mammography varies substantially by the technologist performing the examination."[20]

Screening requires a technologist with an amazing amount of patience, compassion, technical as well as verbal skills and constant self-motivation as rarely is the woman joyously participating – they bear it. "... they maybe think that if they get breast cancer they're gonna die next week.... And if they have a bad experience they're probably not gonna come back."[21]

Has digital technology helped ease the technologist's job? While 2D and 3D have improved the viability of mammography they have changed the landscape for the technologist.

Telemammography has been a time benefit for interpreting physicians but may have cost the technologist support that was significant. Survey results indicate the most important variable related to mammographic technologist job satisfaction is the technologist-radiologist relationship; a negative relationship results in lower job satisfaction, which can affect job performance and patient care.

Digital mammography ALSO added to the price of our systems and raised the pressure to move the patients thru efficiently. In the UK, where programs are government funded, there is additional pressure, and "Radiographers are in the [unenviable] position of having to reconcile time limits (about 6 min per examination for screening services) and strictly monitored standards for a technically satisfactory image with vaguer [*sic*] recommendations to give more information and take a gentle and supportive approach. Performance moreover is judged on image quality not patient experience." [23]

A 2000 US study demonstrated the ability to perform a 4 -view mammogram in less than 3 minutes – if the patient can be positioned in 30 seconds - compared to our previous analog technology of 12 minutes. [24]

In both of these scenarios the technologist/patient interaction can degrade the ultimate goal of providing for a compassionate exam.  A 1995 study of 6,898 women "found that unpleasant mammography experiences, such as enduring more pain than anticipated or being dissatisfied with the technique of the screening staff, was negatively correlated with return for future mammography."[25]

When the technologist feels squeezed between time management and patients, it challenges their own ability to tolerate the stress of 20-30 patients a day, potentially leading to less than optimal patient interactions, lowered imaging standards and burnout. Figuratively caught between two "plates".

## Pain and the patient/ technologist interaction

We need to compress. No one performing mammography disputes this fact. And, "the amount of compression force consistently showed significant effects on the image quality ... perfect and good images consistently required significantly more compression force than the moderate and inadequate images." [27]

However, pain in mammography is not a negligible issue for patients and not without costs. The patient whose body is under stress is not easily positioned leading to increased technologist, effort to obtain all the needed tissue, and a stressed patient will not easily accept optimized compression.

If annual screening is promoted, then improving their experience is a must. In a 2003 study 22% of women who experienced pain did not return or were not [sure to] return to the same unit. In the group of women who did not feel pain, 87% said they would certainly return to the same unit. [28]

*"It is apparent that the patient experience of comfort and pain during mammography is an area warranting increased research and solutions. Approaches to reduce discomfort should be considered in order to provide screening compliance."*[28] *One breast cancer survivor's hope: Women can have their regular screenings "without pain".* [29]

**Technologists would be even more grateful than their patients for the ability to provide a pain free exam. Is it possible?**

A number of psychological studies have shown that if one is able to exercise control over the application and predictability of noxious stimuli, then tolerance to pain is increased and the pain itself may be attenuated.

Humans with control show reduced emotional and physiological reaction to a stress experience. [30]

Thus an important factor in determining the adverse consequences of a stress experience is the degree to which an individual can exert control over the stressor.

## Give them control

Several companies have modified their compression devices with the goal of reducing the pain complaints. One system replaced the hard edges of the compression paddle with a pink rubber trim as a means to reduce stress and decrease tension against the chest wall. Another developed a curved compression paddle with the potential of applying compression more uniformly across the breast for greater comfort overall. [32]

What about verbal control over compression to allow the women to feel they are in control? The idea is not new. In 1999, G.W. Eklund, MD, recommended giving the patient verbal control over the degree of compression. [33] [The] "fact that patients were told that they could stop the mammography if it became too painful was significantly related to [reducing] the pain experience (88 vs 68%). Women who were not warned [had] 3.6 times more likelihood to feel pain."[34]

*Social psychologists have also found that perceived control is more important than actual control in reducing stress. Perceived control is defined as "the belief that one has the ability to make a difference in the course or the consequences of some event or experience; often helpful in dealing with stressors".* [31]

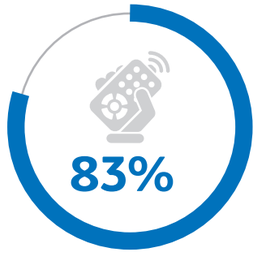
Another approach is self or patient assisted compression, using the technologist hand compression control on the unit. In a 2011 ECR Scientific Paper study of 149 patients, once the patient was positioned the technologist and patient each compressed one side. The patient perceived significantly less discomfort with the self-compression technique - 83% stating they “were extremely satisfied, they have appreciated to be able to manage their pain, by controlling the compression, they have appreciated the active participation during the examination and some said they would like to undergo mammography with the Patient-assisted compression technique in 1 year.” [35]

One benefit of patient-assisted compression is also a higher level of compression. In a side-by-side study, patient compressed side vs technologist compressed side – patients were able to tolerate higher compression when they applied it to themselves. They are in control. A participating technologist explained,

*“With the breast that was self-compressed you actually see the amount of compression increasing compared to the mammographer compressed side, which means you get a reduction in breast thickness, which means a reduction in breast radiation dose.” [36]*

In a UK Blog a technologist explained she used patient assisted compression on her very anxious patients and found it ‘surprisingly successful’ in reducing stress. She admits it takes a bit more time to explain the process but, “I find that most women put on a level of compression that I would have applied myself, [and]...never have I taken an image using this technique that required repeating because of too little compression or blurring.”[37]

Although doable, the position of the hand compression device was developed for the technologist - a bit awkward, as not designed for patient use. The patient cannot easily release compression if too much is applied. Is there another way?




The patient perceived significantly **less discomfort with the self-compression technique** - 83% stating they “were extremely satisfied.

## An innovative – “patient assisted compression device”

In September of 2017 the Food and Drug Administration (FDA) granted pre-market clearance [510(k)] for the first patient-assisted compression device. Through clinical validation the manufacturer demonstrated that the addition of a remote to allow self-compression did not negatively impact image quality. Alberto Gutierrez, Ph.D., FDA Director of the Office of In Vitro Diagnostics and Radiological Health indicated “... some patients may experience anxiety or stress about the discomfort from the compression during the mammogram. This device allows patients some control over the amount of compression for their exam.” [38] Erkin Anbal, MD, a radiologist at a site utilizing this innovation expressed her belief that,

“One of the main reasons of the fear is the anxiety that another person is compressing your breast.” In our clinic, we provide the patient with a device, which enables her to self-compress her own tissue. The patient can individually adjust her own level of pain. Therefore, they can compress themselves at ease and even further than the technologist.[39]

How does the patient wireless remote-control work? The patient is instructed on the use of the remote at the beginning of the exam, providing her with the confidence that she will be able to control her own compression to her own degree of tolerance. This initial perceived control allows her to relax into compression instead of fighting against it with a tense body.

Once patient is positioned correctly by the technologist, the patient is instructed to begin to apply compression. The remote is designed to increase compression in small increments. The technologist monitors to ensure adequacy of the applied compression. If not enough, she can advise the patient to apply more – if too much, she can advise the patient to back it off if it is uncomfortable.

A patient satisfaction survey of 160 women in two European sites found “... 79 percent of the patients who used the patient-assisted compression device found it improved the comfort of their exam, and 54 percent found it led to less anxiety.”[40]

Does remote patient assisted compression change the patient pain perception and increase her willingness to undergo screening mammography? Comparing two women’s experiences with compression it seems yes - a resounding yes.

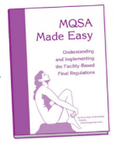
**Scenario 1:**
When the technologist performed the compression – even with the use of encouragement - the patient expressed her acceptance of an unpleasant exam, "We encourage you to really keep up with it, ...You weigh your choices, you know, you want to take care of yourself, so you just do it, but it’s a matter that you must do it, even though you suffer.” [41]
**She will be back – but not eagerly.**

**Scenario 2:**
When the patient assisted compression device was used:
“I personally adjusted my level of compression, so it was fast and pain-free, ...I believe women can now have their routine checks without fear.”[42]
**She will be back – with a willingness to embrace mammography.**

We have always compressed because we care. Our goal has never been to cause pain but to find cancer early – before it threatens life. It has not been pleasant for the technologist to apply it, nor for the patient to have it applied.

Patients that experience a fast and less painful mammogram will be thrilled to share this new approach. As drivers of healthcare choices they will become your best source of marketing – word of mouth - the vehicle for others to arrive at your door on their own. Technology may have transformed this dynamic, changing the experience from an “OW to an AH” for the patient and for the technologist. Let’s talk compression – patient-assisted compression.

Author:

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