IMPROVEMENT OF QUALITY OF THE NATIONAL CANCER SCREENING PROGRAMMES IMPLEMENTATION (CRO SCREENING)
Quality Assurance In Breast Cancer Screening Mammography

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Environment of screening mammography

• The colour, size and placement of the mammography machine

• The room designated for breast imaging only.

• The temperature and the lighting in the X-ray room
Radiographer. Introduction to the examination

• Creation of personal relationship with the woman.

• Determination the woman’s previous mammographic experience and past breast problems.

• Record of any current breast symptoms or information, which may be of importance to the radiologist, particularly on the underside of the breast.
Information to the radiologist

- Scars
- Skin formations
- Palpable lumps
- Nipple retraction
Information to the woman

• The number of views to be taken and an outline of the positioning

• Explanation of the importance of compression

• The procedure for notifying the results
Starting the examination

- Select size of breast support table and compression paddle
- Clean the support table and compression paddle
- Select chamber position
- Place cassette in cassette holder
- Ensure correct identifications of the woman are in place
- Position the breast
- Remove any overlying artefacts e.g. spectacles, shoulders and skin folds
- Apply the compression slowly and carefully until the breast is firmly held
- Make the exposure
- Release the compression immediately
Size of breast support table and compression paddle. Chamber position.
Positioning

• Breast positioning is an art.

• Incorrect positioning is the most common problem.

• Skills required to perform optimal mammographic positioning are high.

• Sufficient time to carry out the investigation order to produce optimal images.
Positioning. CC view

• The medial border of the breast is shown

• As much as possible of the lateral aspect of the breast is shown

• If possible, the pectoral muscle shadow is shown on the posterior edge of the breast

• The nipple should be in profile

• Symmetrical images
Positioning. CC view

- The film support table in the correct height for the woman.
Positioning. CC view
Positioning. MLO view

- All the breast tissue clearly shown
- Pectoral muscle to nipple level
- Symmetrical images
- Nipple in profile
- Inframammary angle clearly demonstrated
Positioning. MLO view
Positioning. MLO view
Positioning. MLO view

Key aspects to achieve a high quality MLO view:

• height of the breast support table,

• the angle being used,

• the lift, spread and compression of the breast

• and the comfort of the woman.
Positioning. MLO view

30°  45°  60° ?
Positioning. MLO view

45-60°
Positioning. MLO view

30-45°
Positioning. MLO view
Overlying artefacts e.g. spectacles, shoulders
Overlying artefacts e.g. hand, hair
Overlying artefacts e.g. skin folds
Compression

- Less scattered radiation - better the contrast of the images
- Reduction the overlapping of tissue shadows - better visualisation of the breast tissue
- Lower radiation dose
- Probability of blurring due to movement is reduced

100N  200N  300N ?
(10 kg  20 kg  30 kg) ?
King-size breasts: MLO – deep prepectoral tissue visualisation
King-size breasts: CC – nipple visualisation
Augmented breasts – implants included
Augmented breasts – implants included
Augmented breasts – implants excluded
Augmented breasts – implants excluded
Social skills

• Communication between the radiographer and the woman is one of the most important aspects of the examination.

• Radiographers play a key role in optimising the woman’s experience, satisfaction and continued acceptance and uptake of the service.

• The radiographer must be friendly, caring and generate confidence in the woman.

• In a pleasant, calm and informative atmosphere the woman is more likely to relax.
Radiologist ensures:

- High level of image quality
  - a satisfactory quality assurance system
  - sufficient quality control mechanisms

- Sufficient radiological performance levels
  - effectively advancing the time of diagnosis of cancers
  - and lowering the rate of advanced cancers

- Minimised the adverse effects of screening
Radiologist. Image quality

• All necessary physical-technical and professional quality control processes are continuously carried out

• Assess before reporting on the mammogram if the proper positioning techniques were used by the radiographer

• Be familiar with the important aspects of exposure and processing techniques (which play a vital role in final image quality in analogue setting)

• Ultimately, must be resolute in refusing to accept mammograms not meeting sufficient criteria for adequate diagnosis.
Viewing conditions

- Reading environment
  - undisturbed
  - control of background room light
  - no unnecessary light glaring from the film viewer

- Previous mammograms at the time of screen reading:
  - increasing cancer detection by the ability to perceive changes in appearance between examinations,
  - reducing unnecessary recall to assessment for long standing benign lesions

- Double reading increases sensitivity of the screening test by 5-15%
Full Field Digital Mammography (FFDM) with Soft Copy Reading

For the soft-copy reading in a screening programme are mandatory:

• optimal reading environments,
• high resolution monitors,
• user-friendly image display

• Feedback of results at all stages is an important learning and quality enhancing process and mechanisms should be in place to achieve this
Reduction of adverse effects

• Unnecessary recalls
  • are costly,
  • cause psychological discomfort to the woman,
  • may result in unnecessary biopsies.

• Recalled cases should be reviewed and the positive predictive value for malignancy determined for each category of mammographic abnormality

• Delay
  • in communicating results,
  • performing assessment or surgery - is likely to cause distress and anxiety.