Provincial Health Services Authority

DIGITAL MAMMOGRAPHY IMAGE DISPLAY AND ARCHIVING PRACTICE GUIDELINES: BREAST SCREENING

(Quality Management – SG-DG 600)

Summary of Changes

	NEW	Previous
BC Cancer	September 2022 – Merged SG DG 600/800/900	July 2011; February 2018

1. Introduction

1.1. Focus

The focus is to provide guiding principles for Picture Archiving and Communications System (PACS) digital mammography image display, management and archive for interpretation.

1.2. Health Organization Site Applicability

All BC Cancer Breast Screening Centres

1.3. Practice Level

- Breast Screening Centre Staff
- Breast Screening Centre Managers
- Breast Screening Program Chief Radiologists
- Breast Screening Program Chief Technologists
- Breast Screening Program Radiologists
- IMITS
- MI Informatics
- Breast Screening Quality Assurance Support Group

1.4. Definitions

Hanging protocol: Orientation and sequence order of digital images displayed on a review workstation using PACS.

2. Practice Guidelines

2.1. Digital Image Display

Hanging Protocols must be designed so that every image will be viewed at 1:1 (pixel to pixel) or full resolution[1] at some point during the reporting process.

Hanging protocols should be specific to mammography with proper orientation and labeling of images. The hanging protocols should display images from the participant's right to left.

Comparison should be made with previous images when available. If previous images are hard copy film, comparison can be made with either the hard copy films or digitized previous images (Section 2.1.5).

Workstations used for reporting screening exams must conform to the requirements as specified in **SG-DG 400 Breast Screening Standards for Review Workstation**. Some workstation software can provide notification that "all images have not been viewed" prior to completing reporting/exiting the study; if available this option must be enabled as part of the screening protocol.

2.2. Digitized (Film) Image Display

If digitizers are used for digitizing prior screening mammography films, equipment must have been certified for mammography and must comply with the specification requirement and quality assurance program as recommended by the Breast Screening Quality Assurance Support Group.

Digitizer software used for digitizing prior screening mammography films shall support the IHE Mammography Image Profile as the "Acquisition Modality" actor. [2]

All digitized images of prior screening films must be displayed on the review workstation with proper orientation, patient information, and correctly labelled view positioning (RCC, LCC, RMLO, and LMLO).

2.3. Archive Management

Hardware and software used must meet established standards. The BC Cancer Breast Screening program standards align with Diagnostic Accreditation Program (DAP) requirements[3]. Breast Screening requires that all image archives within PACS, used to store digital mammography images, shall support the IHE Mammography Image Integration Profile as the "Image Manager/Archive" actor [2], and must meet the following criteria:

1. Any data compression scheme utilized for image or data storage shall be reversible and supported by DICOM standard. The definition of reversible means that any image or data in compression should be bit-preserving after decompression compared to the original image or data before compression.
2. There is a documented disaster recovery plan and associated risk assessment for recovery and access to data.
3. For information systems, database and diagnostic image back up is performed daily and the backup is securely located in a separate physical location.
4. Test procedures are performed to ensure accurate and consistent information exchange and to check the effect of software changes on the imaging modalities and/or PACS prior to clinical use.

5. Data access is restricted, controlled and monitored. Data stored on-site is accessible, but protected from unauthorized access and safeguarded against harm (e.g. water, fire, etc.).
6. Security incidents are reported, documented, investigated and resolved. Actions are taken to prevent recurrence.
7. High-availability servers exist to provide the maximum possible access to the applications.
8. A designated individual is responsible for monitoring and maintaining the system(s).
9. There is compliance with the DICOM standard for all new digital imaging equipment.
10. Communication protocols, file formats and compression conforms to the current DICOM (3.0) network standard.
11. Network and software security protocols are in place to protect the confidentiality of images, diagnostic reports and other data.
12. Test procedures are performed to ensure accurate and consistent information exchange, including but not limited to modality DICOM transfer verification, DICOM Modality Worklist and RIS verification and the validation of measurement tool accuracy.

Note: Technical specifications for Full Field Digital Mammography (FFDM) systems and soft copy display workstations are available from the Breast Screening Physics support group.

All Centre workstations used for program reporting must undergo initial acceptance testing by a program physicist, as well as receive an annual physicist assessment.

All home reporting workstations used for program reporting must undergo initial acceptance testing by a qualified medical physicist, as well as receive an annual physicist assessment.

i. Qualified medical physicists may be identified by consulting:
Website: https://ccpm.ca/_uploads/60c771a26d56b.pdf
Email: screeningadmin@bccancer.bc.ca

3. Related Document and References

3.1. Related Documents

SG-DG 400 – Breast Screening Standards for Review Workstation

3.2. References

1. ACR Practice Guideline for Determinants of Image Quality in Digital Mammography. Revised 2013
2. Integrating the Healthcare Enterprise, IHA Technical Framework Volume I, 2007.
3. https://www-pub.iaea.org/MTCD/publications/PDF/Pub1482Files/Annex_3_IHE_MammoExtract.pdf
4. College of Physicians and Surgeons of British Columbia. Diagnostic Accreditation Program (DAP) Accreditation Standards - Diagnostic Imaging. (2022, January 1). Retrieved October 18, 2022, from https://www.cpsbc.ca/files/pdf/DAP-AS-Diagnostic-Imaging-V1.7.pdf

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First Issued:	01-FEB-2018		
Approving Body:	Breast Screening Quality Management Committee		
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Posted Date:	05-JAN-2024		
Version:	2.0		
Revision:	**Name of Reviser**	**Description**	**Date**
	Amanda Hunter	Terminology and formatting	24-AUG-2023