



EUROPEAN QUALITY ASSURANCE SCHEME FOR BREAST CANCER SERVICES

Training Template

for Digital Breast Cancer Screening

INTRODUCTION

Abbreviations

BI-RADS™	Breast Imaging Reporting and Data System
ECIBC	European Commission Initiative on Breast Cancer
FNA	Fine Needle Aspiration
JRC	Joint Research Centre
MRI	Magnetic Resonance Imaging
NCB	Needle Core Biopsy
PACS	Picture Archiving and Communication Systems
QA	Quality Assurance
RIS	Radiology Information System
US	Ultrasound
VANCB	Vacuum-Assisted Needle Core Biopsy



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Radiologists and **radiographers** are the two key professionals involved in breast cancer screening. Their competences have an immense impact on the quality of the screening services.

To ensure radiologists and radiographers are competent and have received the necessary training, the JRC developed the [Training template for digital breast cancer screening](#) (ECIBC training template). The ECIBC training template includes a list of **essential skills** that the professionals must have and outlines the **minimum training** content to be included in the postgraduate curriculum in order to achieve those essential skills. Only the professionals who have received at least the training included in the template will be recognised as fit to work in breast cancer screening programmes under the [European quality assurance \(QA\) scheme](#).

As part of the European QA Scheme, the ECIBC training template will be subject to a feasibility testing to ensure that its application is feasible in real settings.

Definitions

Digital breast cancer screening: breast cancer screening in which images are stored on a computer.

In this document, digital breast cancer screening includes screening using digital mammography and digital breast tomosynthesis.

Radiographer: a trained healthcare professional who performs imaging examinations and post-processing.

In this document, this term is used to refer to the professionals covered by the generic name 'Radiographer/Radiotherapist' in the European Commission's [Regulated Professions Database](#).

Radiologist: a specialised medical doctor who diagnoses and treats diseases and injuries using medical imaging techniques.

In this document, this term refers to all the titles listed in [Directive 2005/36/EC of the European Parliament and of the Council](#) that are achieved on completion of 'Radiology' or 'Diagnostic Radiology' training courses.



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ESSENTIAL SKILLS



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Radiologists

Screening services

Radiologists working in breast cancer screening services under the European QA scheme are required to have the following skills.

Technical skills

To know the technical procedure for obtaining high-quality standard mammographic views

To interpret and report screening mammograms

To judge the quality of mammograms and know how to improve image quality

To judge if additional images are needed

To appreciate difficult cases in which it is appropriate to obtain a second opinion

To be familiar with the standardised diagnostic categories such as BI-RADS™

To report breast imaging examinations using a standardised descriptor and diagnostic categories as well as providing final recommendations

To apply patient confidentiality and data protection

Communication skills

To explain the details of the screening mammography including the harms, benefits, and limitations before asking for a written consent

To actively interact and cooperate with other radiologists and members of the breast care team

To respect the roles of other members of the breast care team

Safety skills

To justify the screening mammography

To understand the properties and interaction of ionising radiation, and radiation doses in mammography

To optimise the mammography (e.g. choosing optimal parameters for the imaging type and minimising ionising radiation exposure)



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Radiologists

Diagnostic services

Radiologists working in breast cancer diagnostic services under the European QA scheme are required to have the following skills.

Technical skills

To understand the significance of a woman's personal history

To perform physical examination of the breast and axilla

To choose the best technique for imaging and tissue sampling

To know the technical procedure for obtaining high-quality standard and additional/special mammographic views

To judge the quality of mammograms and know how to improve image quality

To judge if additional images are needed

To perform/supervise the radiography of surgery specimens

To interpret the radiograph of surgery specimens

To guide the technician to perform breast MRI

To perform post-processing and reporting of breast MRI

To perform US examination of breast and axilla

To perform FNA, NCB or VANCB of breast lesions and lymph nodes with any type of guidance

To perform localisation under any type of guidance

To perform invasive/non-invasive image-guided interventions for the diagnosis of breast diseases (i.e. areolar tissue sampling, prepare smears from nipple discharge)

To appreciate difficult cases in which it is appropriate to obtain a second opinion

To be familiar with the standardised diagnostic categories such as BI-RADS™

To interpret and report mammograms using a standardised descriptor, diagnostic categories as well as providing final recommendations

To interpret and report all additional imaging techniques/modalities and/or interventional procedures

To perform radio-pathologic and radio-clinical correlation

To work in a multidisciplinary environment

To apply patient confidentiality and data protection



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Radiologists

Diagnostic services (*cont.*)

Communication skills

To report breast imaging examinations using a clear and synthetic free text

To explain the details of the breast imaging examinations or interventions, including the harms, benefits, and limitations, before asking for a written consent

To communicate to women and their relatives using proper language at any step of the imaging process

To understand the anxieties and fears of women attending breast screening and assessment

To communicate bad news keeping in mind the psychosocial circumstances of the patient and discuss further steps of treatment

To explain the following steps in diagnosis and treatment

To actively interact and cooperate with other radiologists and members of the breast care team

To respect the roles of other members of the breast care team

Safety skills

To justify breast imaging examinations and interventions

To understand the properties and interaction of ionising radiation, and radiation doses in mammography

To optimise breast imaging examinations and interventions (e.g. choosing optimal parameters for the imaging type and minimising ionising radiation exposure)



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Radiographers Screening services

Radiographers working in breast cancer screening services under the European QA scheme are required to have the following skills.

Technical skills

To assess their own skills

To understand breast symptoms and diseases

To independently perform high standard mammography, taking the woman's condition and ability into consideration

To assess and know how to improve image quality

To decide if a retake is needed

To see and identify artefacts and act accordingly

To know mammographic equipment, RIS, PACS and know how to use the equipment's operating capabilities

To know the basic x-ray physics

To be familiar with other imaging techniques

To carry out relevant administrative procedures

To work in a multidisciplinary team

To be familiar with the workflow of a screening programme

To apply patient confidentiality and data protection

To know the benefits and harms of mammography



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Radiographers

Screening services (*cont.*)

Communication skills

To know inter/intra disciplinary cooperation/communication

To explain the process of the examination

To explain the limitations, benefits and harms of mammography screening

To discuss the following steps in the screening process after the mammography examination

To understand women's concerns (anxieties, fears, need for information, etc.)

To be familiar with care and management of malignant and benign breast diseases to address women's need for information

To instruct the woman to position herself

To perform the examination in an acceptable manner, creating a pleasant, calm, respectful, and informative atmosphere

To react properly to verbal/non-verbal emotional reaction

Safety skills

To recognise possible radiation safety hazards in the mammography room

To recognise technical problems and artefacts and act accordingly

To understand the properties and interaction of ionising radiation, and radiation doses in mammography

To keep radiation doses as low as possible

To carry out quality control procedures



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To assess their own skills

To understand breast symptoms and diseases

To independently perform high standard mammography, taking the woman's condition and ability into consideration

To assess and know how to improve image quality

To decide if a retake is needed

To decide if additional/special views are needed

To perform additional/special views

To see and identify artefacts and act accordingly

To know mammographic equipment, RIS, PACS and know how to use the equipment's operating capabilities

To know the basic x-ray physics

To be familiar with other imaging techniques

To carry out relevant administrative procedures

To work in a multidisciplinary team

To be familiar with the workflow of a screening programme

To apply patient confidentiality and data protection

To know the benefits and harms of mammography



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Radiographers

Diagnostic services (*cont.*)

Communication skills

To know inter/intra disciplinary cooperation/communication

To explain the process of the examination

To explain and discuss the limitations, benefits and harms of mammography screening

To discuss the following steps in the screening process after the mammography examination

To understand women's concerns (anxieties, fears, need for information, etc.)

To be familiar with care and management of malignant and benign breast diseases to address women's need for information

To instruct the woman to position herself

To perform the examination in an acceptable manner, creating a pleasant, calm, respectful, and informative atmosphere

To communicate properly the reason for an additional view

To react properly to verbal/non-verbal emotional reaction

Safety skills

To recognise possible radiation safety hazards in the mammography room

To recognise technical problems and artefacts and act accordingly

To understand the properties and interaction of ionising radiation, and radiation doses in mammography

To keep radiation doses as low as possible

To carry out quality control procedures



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MINIMUM TRAINING CONTENT



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Radiologists

Screening services

Radiologists working in breast cancer screening services under the European QA scheme are required to have fulfilled at least the following training content.

Breast cancer screening

Epidemiology of breast cancer (including overdiagnosis, overtreatment and epidemiologic aspects of screening)

Legal liability in breast imaging for the modalities used

Legal basis of the screening program

Basics and organisation of the screening programme

Methods of the screening programme

Limitations of screening programmes

Data flow and documentation chain

Role and responsibilities of professionals

Patient confidentiality and data protection

The breast

Anatomy and physiology of breast and axilla in relation with age, hormonal status, pregnancy, and lactation

Imaging of normal breast and variants

Breast imaging after hormone replacement therapy, surgery, chemotherapy, hormonal therapy or radiation therapy

Risk factors for breast cancer

Benign lesions, malignant lesions, and lesions with uncertain malignant potential

Microcalcifications, parenchymal distortions and asymmetrical densities

Radio-pathologic correlation of breast lesions

Current issues of diagnosis and treatment of breast disease



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Radiologists

Screening services *(cont.)*

Breast imaging

Digital mammography:

- Physical and technical basics of mammography
 - Hardware and software
 - Image processing
 - Image quality
 - Artefacts
 - Breast positioning, standard views, additional and special views
 - Indications and limitations of mammography
-

Breast density and its effects on mammographic sensitivity and its role as a risk factor for breast cancer

Standardised reporting and diagnostic categories (e.g. BI-RADS™)

Radiation protection

Breast cancer care guidelines

Technical quality assurance

Care and communication

Communication principles and language use

Caring for women in the context of a breast cancer screening program

Woman information before the consent



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The breast

Anatomy and physiology of breast and axilla in relation with age, hormonal status, pregnancy, and lactation

Imaging of normal breast and variants

Breast imaging after hormone replacement therapy, surgery, chemotherapy, hormonal therapy or radiation therapy

Risk factors for breast cancer

Benign lesions, malignant lesions, and lesions with uncertain malignant potential

Microcalcifications, parenchymal distortions and asymmetrical densities

Radio-pathologic correlation of breast lesions

Physical breast examination

Management of benign breast diseases

Care and management of breast cancer

Current issues of diagnosis and treatment of breast disease



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Radiologists

Diagnostic services (*cont.*)

Breast imaging

Digital mammography:

- Physical and technical basics of mammography
- Hardware and software
- Image processing
- Image quality
- Artefacts
- Breast positioning, standard views, additional and special views
- Specimen radiography
- Indications and limitations of mammography

Additional breast imaging techniques/modalities:

- Digital breast tomosynthesis
- Breast ultrasound
- Breast magnetic resonance imaging
- Contrast-enhanced mammography

Breast density and its effects on mammographic sensitivity and its role as a risk factor for breast cancer

Standardised reporting and diagnostic categories (e.g. BI-RADS™)

Image-guided biopsy and localisation techniques

Other invasive/non-invasive image-guided interventions for the diagnosis of breast diseases

Radiation protection

Breast cancer care guidelines

Technical quality assurance



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Breast cancer screening

Epidemiology of breast cancer (including overdiagnosis, overtreatment and epidemiologic aspects of screening)

Balance of benefits and harms of screening

Legal basis of the screening program

Basics and organisation of the screening programme

Data flow and documentation chain

Role and responsibilities of professionals

Patient confidentiality and data protection

The breast

Anatomy, physiology and pathology of breast and axilla

Radiology of normal breast and axilla and variants

Radiology of breast lesions

Breast examination



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Radiographers
Screening services *(cont.)*

Breast imaging

Imaging with digital mammography:

- Physical and technical basics of mammography
- Hardware and software
- Image processing
- Image quality
- Artefacts
- Radiographic positioning, standard views, additional and special views

Mammographic interpretation

Classification of mammography (BI-RADS™)

Radiation protection

Breast cancer care guidelines

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The breast

Anatomy, physiology and pathology of breast and axilla

Radiology of normal breast and axilla and variants

Radiology of breast lesions

Breast examination

Management of benign breast diseases

Care and management of breast cancer



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Breast imaging

Imaging with digital mammography:

- Physical and technical basics of mammography
- Hardware and software
- Image processing
- Image quality
- Artefacts
- Radiographic positioning, standard views, additional and special views
- Specimen radiography

Mammographic interpretation

Classification of mammography (BI-RADS™)

Additional modalities used in breast imaging

Image-guided biopsy and localisation techniques

Radiation protection

Breast cancer care guidelines

Technical quality assurance

Care and communication

Communication principles and language use

Caring for women in the context of a breast cancer screening program

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