

Provisional European Training and Education Framework for Lung Cancer Screening

Background and Rationale

The implementation of lung cancer screening (LCS) programs is increasing across Europe, supported by evidence demonstrating the potential of screening to reduce lung cancer mortality in high-risk populations. As countries progressively move from research trials and pilot initiatives towards organised screening programs, the need for structured and harmonised training for healthcare professionals involved in LCS has become increasingly evident.

. The aim of this framework is to provide an initial reference structure to support harmonised training programs across Europe, while allowing flexibility to reflect national contexts and stages of program implementation.

Target Audience

In this initial phase, the proposed training framework has focused on two professional groups:

- Radiologists
- Pulmonologists

However, the framework is designed to remain expandable to include other professionals involved in the LCS pathway, such as general practitioners, thoracic surgeons, smoking cessation specialists, screening coordinators, radiographers, nurses, data managers and quality assurance personnel.

Learning Objectives

The proposed training framework aims to support healthcare professionals in developing the competencies and skills required to safely and effectively participate in LCS programs. The relevance and application of specific learning objectives may vary depending on professional roles and the organisation of screening programmes across different settings. These include:

- Understand the scientific and clinical rationale for LCS
- Apply evidence-based eligibility criteria and risk stratification approaches
- Perform and interpret low-dose CT examinations according to recognised technical and quality standards
- Apply standardised approaches to pulmonary nodule detection, characterisation, and management
- Recognise and appropriately manage incidental findings detected during screening
- Communicate effectively with screening participants and members of the multidisciplinary team
- Promote participant engagement in smoking cessation
- Maintain and update professional competencies in LCS over time

Proposed Curriculum Structure

The proposed curriculum follows a modular structure designed to support flexibility and adaptation across different healthcare systems and stages of screening implementation. The modules described below represent core thematic areas currently identified as essential for training in LCS. While the modules provide a shared structure for multidisciplinary training, the specific competencies addressed within each module may differ according to professional roles. The specific content associated with each module should be further refined during subsequent phases of curriculum development.

Module 1 — Principles and Evidence Base of Lung Cancer Screening

This module focuses on the scientific and clinical foundations of LCS, including the evidence base, benefits, and limitations of screening programs.

Key topics include:

- Epidemiology of lung cancer
- Lung cancer screening rationale
- Benefits, limitations, and potential harms of screening
- Overview of major clinical trials, and understanding their key outcomes and limitations

Module 2 — Eligibility Criteria and Risk Stratification

This module focuses on identifying individuals eligible for screening and applying risk-based approaches to support appropriate participant selection.

Key topics include:

- Screening eligibility criteria
- Risk prediction models
- Exclusion criteria
- Screening intervals

Module 3 — Imaging and Technical Standards in Lung Cancer Screening

This module focuses on the technical aspects of low-dose CT screening, including imaging protocols, radiation safety, and quality assurance in image acquisition.

Key topics include:

- Low-dose CT acquisition protocols
- Radiation dose optimisation strategies
- Quality control and quality assurance

Module 4 — Image Interpretation and Nodule Management

This module focuses on the interpretation of screening findings and the application of standardised approaches to pulmonary nodule assessment and management.

Key topics include:

- Pulmonary nodule detection and characterisation
- Standardised radiological reporting and interpretation of screening findings
- Nodule measurement and volumetric assessment
- Nodule growth evaluation
- Knowledge and application of established nodule management guidelines
- Use of AI-tools in screening workflows

Module 5 — Multidisciplinary Pathways and Clinical Integration

This module focuses on coordination of care across the screening pathway and collaboration between clinical teams involved in the management of screening findings.

Key topics include:

- Multidisciplinary team (MDT) collaboration and case discussion within LCS
- Referral pathways and diagnostic work-up
- Management of incidental findings

Module 6 — Communication

This module focuses on communication with screening participants and other members of MDT.

Key topics include:

- Risk-benefit discussion
- Informed consent
- Smoking cessation support
- Communication of screening results
- Shared decision-making
- Communication with other members of MDT

Module 7 — Quality Assurance and Continuous Professional Development

This module focuses on maintaining high standards of practice through quality assurance, performance monitoring, and continuous professional development.

Key topics include:

- Quality indicators and performance monitoring
- Audit and feedback mechanisms
- Continuing professional development
- Competency maintenance and reassessment

Training Modalities

The proposed training framework is intended to support a combination of theoretical knowledge and practical competence. Educational and training activities may include:

- Structured online learning modules
- Webinars
- Case-based learning
- Supervised interpretation of screening cases
- Practical workshops and simulation-based training
- Continuous professional development activities

The exact format and duration of training activities should be further defined during subsequent phases of curriculum development.

Next Steps

The development of the European training and education framework for LCS is an ongoing process involving the evaluation of the current status of LCS training and education across Europe, expert consultation, and consensus building. More details of the curriculum will be published in a manuscript which is due to be published after this year.