

24 September 2026

IARC Handbooks of Cancer Prevention Volume 21: Lung cancer screening

Questions and Answers (Q&A)

On 20–24 April 2026, an international Working Group of experts, convened by the International Agency for Research on Cancer (IARC), evaluated the body of literature assessing lung cancer screening. The experts reviewed the evidence on the benefits and harms of lung cancer screening methods and provided independent, evidence-based evaluations of their effectiveness for lung cancer prevention and control.

A summary of the outcomes of the meeting has been published as a Special Report in *The New England Journal of Medicine*.¹ The findings will be published in full in Volume 21 of the *IARC Handbooks of Cancer Prevention*.

1. What is the *IARC Handbooks* series?

The *IARC Handbooks of Cancer Prevention* are published by IARC. The *IARC Handbooks* provide definitive evaluations about which strategies and interventions prevent cancer or detect cancer at an early stage. To produce these evaluations, IARC convenes an international interdisciplinary Working Group of experts who collect all the relevant studies published to date, review the data, and determine how sure we can be that such strategies and interventions can reduce the risk of cancer or mortality from cancer. Although these evaluations are not policies or recommendations, they provide an important evidence base to help policy-makers and other stakeholders develop and implement effective cancer prevention policies and programmes.

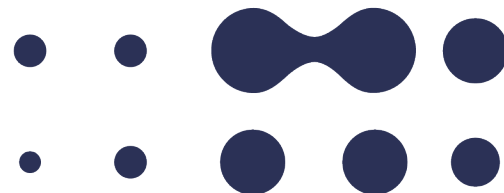
2. When will *IARC Handbooks of Cancer Prevention* Volume 21 be available?

A summary of the outcomes has just been published in *The New England Journal of Medicine*.¹ The full volume of *IARC Handbooks* Volume 21 will be available in April 2027.

3. What will the full volume include?

Volume 21 will include a summary of all studies reviewed, a summary and assessment of the body of evidence, the evaluations and the rationale for those evaluations, as well as several narrative reviews of lung cancer-related topics, including descriptive data of the lung cancer burden, the current status of screening activities worldwide, cost-effectiveness analyses, an overview of the delivery of lung cancer screening, smoking cessation interventions in the screening setting, and interventions to increase participation.

¹ Neamtii L, Callister MEJ, Crosbie P, Lam S, Milch V, Mariosa D, et al. (2026). IARC perspective on lung cancer screening. *N Engl J Med*. Published online 24 September 2026. <https://doi.org/10.1056/NEJMsb2608211>



Therefore, *IARC Handbooks* Volume 21 on lung cancer screening will provide a comprehensive and thorough review of the current literature of numerous facets of lung cancer screening.

4. Why did the *IARC Handbooks* programme evaluate the evidence on lung cancer screening?

Producing an *IARC Handbooks* volume on lung cancer screening is timely. The evidence about the efficacy and effectiveness of lung cancer screening in reducing cancer mortality has accumulated from experimental trials as well as observational studies in established screening programmes. Therefore, it is important to have an independent review from an international group of experts to rely on, to help policy-makers make informed decisions about implementing lung cancer screening in their region or country.

5. What are the key take-home messages from this evaluation?

Screening high-risk populations for lung cancer with low-dose computed tomography (LDCT) reduces lung cancer mortality and reduces the incidence of late-stage lung cancer.

The Working Group could not determine whether screening with chest radiography (X-ray) can reduce lung cancer mortality. The number of studies was limited, and the studies showed conflicting results and had major limitations, thus precluding a conclusion.

6. Who is considered to be at high risk for lung cancer, and what criteria are used to define this group?

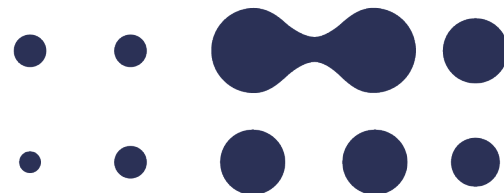
Smoking is the single most important risk factor for lung cancer. Currently, most screening programmes use age-smoking criteria to select the population to be screened. These criteria vary slightly across screening programmes. Typically, individuals aged 50–80 years with more than 20 or 30 cumulative pack-years of tobacco smoking and, for individuals who formerly smoked, less than 10 or 15 years of quitting are considered to be at high risk for lung cancer.

7. What are the research priorities for identifying people at risk of lung cancer who do not meet current screening criteria?

Although smoking remains the main risk factor for lung cancer, there is an increasing prevalence of lung cancer in individuals who have never smoked, and some models are being developed to better identify the population at risk. Also, a recent study led by IARC has shown that blood biomarkers can be used to better identify such populations.

8. What were the most important harms considered, and how did the Working Group conclude that the overall benefits of screening with LDCT outweigh the risks?

Potential harms associated with lung cancer screening are false-positive results, overdiagnosis, overtreatment (treatment of an indolent lesion), complications after diagnosis and treatment, radiation-induced cancer, and



psychological effects. False-negative results also represent a harm because they confer false reassurance of a disease-free state.

The Working Group carefully assessed the benefits and the harms of lung cancer screening and the balance of benefits and harms. They concluded that for the population meeting the above-mentioned eligibility criteria, the benefits of screening substantially outweigh the harms. They emphasized that for lower-risk populations, there is uncertainty about the benefits, and the balance of benefits and harms is highly likely to be less favourable.

9. What is the strongest evidence supporting screening of high-risk individuals for lung cancer with LDCT?

There are two pivotal randomized controlled trials that were adequately powered to assess the efficacy of LDCT in reducing lung cancer mortality. Both trials found that LDCT screening reduces lung cancer mortality in high-risk individuals based on age and smoking history compared with chest radiography screening and no screening, respectively. Additional evidence includes six other trials and several observational studies conducted in settings where lung cancer screening is in place, which corroborate the effect observed in the trials.

10. Why did the evaluation focus on high-risk individuals?

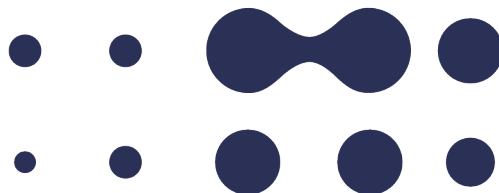
This is an extremely important point. Lung cancer screening is not effective in the general population and would cause too much harm and drain resources.

However, identifying the population for whom screening would be beneficial is challenging, for several reasons:

- Screening registries do not have data on the smoking history or exposure to other risk factors of individuals.
- Individuals must be identified by the general practitioner and receive a risk assessment questionnaire.
- Self-reported data are not always reliable.
- Other risk factors, such as occupational exposure to lung carcinogens, air pollution, or exposure to second-hand tobacco smoke, are relevant to include when assessing lung cancer risk.

11. In the light of these results, what are IARC's recommendations?

IARC does not make recommendations. Recommendations must consider feasibility, acceptability, affordability, cost-effectiveness analyses, and other country-specific elements, which were not reviewed and assessed in this project. The World Health Organization (WHO) is planning to release a policy guide in 2027 that will help health planners to understand how to implement the findings from this *IARC Handbooks* volume.



12. The Working Group concluded that screening individuals with chest radiography, with or without sputum cytology, is not classifiable as to its capacity to reduce mortality from lung cancer or to reduce the incidence of stage III–IV lung cancer. Does this mean that chest radiography is not an effective approach for reducing lung cancer mortality?

The evaluation is not a recommendation, and IARC is not recommending for or against chest radiography. Rather, on the basis of the current evidence, which is limited quantitatively and qualitatively, it was not possible to conclude whether chest radiography reduces lung cancer mortality.

13. Should countries stop screening individuals with chest radiography?

The current body of evidence on chest radiography did not allow the Working Group to reach a conclusion, and further research is needed.

14. Why is this evaluation important?

A rigorous and transparent assessment of the body of evidence was carried out by an international Working Group of independent experts. The resulting evaluations provide a definitive assessment of lung cancer screening.

15. What methodology was used to obtain these results?

The *IARC Handbooks* evaluations follow a rigorous and transparent process:

Step 1: Identify which interventions to review and evaluate.

Step 2: Identify the relevant literature.

Step 3: Screen and select the informative studies.

Step 4: Extract the data, and write study summaries.

Step 5: Evaluate the quality of each study.

Step 6: Perform peer-review, by Working Group members and IARC scientists.

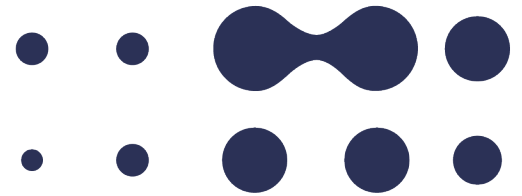
Step 7: Synthesize the results and the quality of the studies.

Step 8: Interpret the results, and evaluate the strength of the evidence.

The Working Group reviews and assesses all informative original studies, and pooled analyses or meta-analyses of studies, conducted in a large number of countries around the world. The scientific literature is reviewed according to strict criteria as defined in the [Preamble to the *IARC Handbooks*](#).

16. How does the *IARC Handbooks* classification system work?

To evaluate interventions of secondary prevention (such as screening methods), the *IARC Handbooks* review studies on cancer incidence or mortality, studies on intermediate outcomes (such as cervical precancerous lesions), and test accuracy studies. On the basis of the criteria defined in the [Preamble to the *IARC Handbooks*](#),



the screening method is classified into Group A, B, C, or D, depending on how effective it is at reducing the incidence of cancer of the target organ or reducing mortality from cancer of the target organ.

For more information, please contact

Véronique Terrasse, Communications Group, at +33 (0)6 45 28 49 52 or terrassev@iarc.who.int

The International Agency for Research on Cancer (IARC) is part of the World Health Organization. Its mission is to coordinate and conduct research on the causes of human cancer and the mechanisms of carcinogenesis, and to develop scientific strategies for cancer control. The Agency is involved in both epidemiological and laboratory research and disseminates scientific information through publications, meetings, courses, and fellowships. If you wish your name to be removed from our press release emailing list, please write to com@iarc.who.int.