

Systems Approach to Lung Cancer Screening Implementation in Europe

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Abstract

In Europe, lung cancer is the most common type of cancer-related death. In high-risk people, screening with Low-Dose Computed Tomography (LDCT) can advance detection and lower lung cancer mortality. To date, however, only four European nations—Poland, Croatia, Italy, and Romania—have vowed to conduct targeted LDCT screening on a large-scale. This paper assesses critical elements required for the successful deployment of screening programmes throughout Europe using a health systems approach. For 10 nations (Belgium, Croatia, France, Germany, Italy, the Netherlands, Poland, Spain, Sweden, and the United Kingdom), recent literature on LDCT screening was read. This was done in addition to 17 semi-structured interviews with local specialists. Research results were compared to lung cancer screening-specific health systems architecture. Although the European policy environment is very diverse, possible implementation hurdles are widespread and consistent with those identified for other cancer screening initiatives. While ensuring uniformity in screening quality and safety across all screening facilities, system aspects are also crucial. These include of having the right kind of data infrastructure, employing targeted recruitment techniques that guarantee participation equity, having enough resources and workforce training, fully integrating screening into multidisciplinary treatment pathways, and offering smoking cessation programmes. Important factors to take into account include stigma and underlying beliefs that lung cancer is a disease that one causes themselves. Governments now have a rare opportunity to construct effective, efficient, and equitable lung cancer screening programmes customized to their health systems, reducing the impact of lung cancer on their people. This opportunity builds on decades of implementation research.

Keywords: Computed tomography • Early detection • Lung cancer • Policy • Screening

Introduction

In Europe, lung cancer is the primary reason for cancer-related deaths. The costliest cancer overall, it causes approximately a quarter of all cancer-related productivity losses. Early identification is acknowledged as the most effective method to lower lung cancer mortality because a significant fraction of cases are discovered at an advanced stage when the prognosis is bad. A large shift to an earlier stage of detection and a decrease in mortality were identified as a result of targeted screening of past and current heavy smokers using Low-Dose Computed Tomography (LDCT), according to cumulative evidence from randomised controlled studies.

However, there hasn't been much of a global push to put population-wide lung cancer screening systems into place [1-3]. Only Croatia, Poland, Italy, and Romania have formally committed to establishing national, structured LDCT screening programmes that specifically target high-risk individuals. Other nations have resisted making lung cancer screening investments. It is generally difficult to translate the results of clinical studies into large-scale, practical screening programmes, as has been observed with various types of cancer screening. To reduce screening dangers and maximise its advantages, it is crucial to ensure uniform quality across all participant screening facilities. The capacity of screening programmes to achieve their stated goals is also significantly impacted by health system factors outside of the screening process itself, such as system governance, workforce capacity, quality and interoperability of data systems, and integration of screening into other health service delivery [4].

Taking a health systems approach to planning for screening programs can, thus, help determine what interplay of services, organizations, people, technology, and information is needed to foster successful implementation.

Health systems thinking has grown extensively over recent years. It has been previously applied to assessing barriers to uptake of breast, colorectal, and cervical cancer screening programs across Europe, and ensuring the sustainability of lung cancer screening programs. The challenges specific to implementing LDCT screening programs have been amply described in the literature [5].

Building on this research, we conducted an analysis to understand the current policy landscape for lung cancer screening in 10 European countries and identify key considerations related to implementation. This article presents a synthesis of our findings.

A policy landscape analysis of lung cancer screening in ten countries was undertaken with the help of a structured assessment of peer-reviewed and grey literature (Belgium, Croatia, France, Germany, Italy, the Netherlands, Poland, Spain, Sweden, and the United Kingdom). All relevant papers published between January 2015 and July 2021 detailing regional clinical trials and feasibility studies, pilot programmes, implementation research, and expert opinion on lung cancer screening were found using a common structured search method across all nations. For further context, policy reports, position papers, and advocacy materials unique to a particular nation were searched. English, Spanish, French, German, and Italian were used for the searches [6].

Although searches were done in English for Sweden, the Netherlands, Croatia, and Poland, the most important sources were found in those countries' native tongues and then translated into English.

The results of a literature search were utilised to choose appropriate lung cancer screening specialists for interviews. Semi-structured interviews with regional authorities were undertaken to talk about the present policy environment around lung cancer screening. None of the interview subjects received payment for taking part. In order to enhance preliminary conclusions from desk research and pinpoint common themes, findings from interviews were combined with those from the literature. After that, the WHO Health Systems Framework was used to map these. Since no patients were engaged in this investigation, there was no need for informed consent.

In all of the nations examined, the policy and legal framework governing the choice to deploy screening programmes is clearly laid out. All nations evaluate the efficacy of screening programmes using Wilson and Jungner's original criteria²¹ or small variants of those criteria. All countries, with the exception of Belgium, where each area independently evaluates implementation, decide on implementation at the national level. Even though choices are made at

the national level in other nations, screening programme execution and organisation are frequently overseen at the regional level, with monitoring of data on coverage, quality, and performance being centralised at the national level [7].

Concerns about the human and technical capacity to perform large-scale LDCT screening appear to vary by nation, according to expert interviews. In the UK, where radiology capacity is already insufficient to meet demand, this is of particular concern. All nations understand the value of funding specialised radiology training, strong quality control systems, and standardised procedures for nodule interpretation and management. It is also being investigated if computer-aided detection techniques, such as those that employ artificial intelligence, could assist radiologists in interpreting Computed Tomography (CT) scans, increase the precision of interpretation, and ease the burden on the capacity already in place.

To ensure consistent quality of screening and interpretation, the European Respiratory Society and the European Society of Radiology advocate centralising screening in multidisciplinary recognised centres of excellence. However, in reality, nations must strike a balance between the requirement to maximise quality and the need to ensure widespread accessibility to screening, which results in various organisational approaches. For its National Program of Early Lung Cancer Detection, Poland has favoured a centralised approach; one leadership centre is appointed by the Ministry of Health in each region and collaborates with two to four chosen screening centres that do CT scans. In a multidisciplinary team at the premier centre, all decisions about diagnosis and treatment are made in unison.

Italian screenings are being held in 18 centres of excellence. 8 Germany, on the other hand, is likely to use a decentralised strategy, with screening being provided in either community- or hospital-based radiology clinics because of the country's high share of private sector and ambulatory radiologists. With interpretation and follow-up consolidated in lung cancer centres with centralised accreditation, all participating centres would be. The delivery of breast cancer screening in France is anticipated to follow a similar strategy. The Targeted Lung Health Check concept in England provides screening at some fixed hospital sites where access is not a major concern, as well as in community settings to boost outreach to high-risk patients who reside in the most underserved areas. Remote connections between all screening facilities and centralised interdisciplinary specialist teams are available. Personalization of LDCT screening is anticipated to be crucial in achieving the best possible balance between risks and benefits, increasing the effectiveness of resource usage, and maximising the impact of screening programmes in detecting lung cancer at an earlier stage [8]. The danger of needless examinations and repeat scans is reduced for people who present with lower risk thanks to tailored screening. Several studies are investigating the potential use of biomarkers, such as liquid biopsies, to establish the baseline risk of screening participants and personalise follow-up regimens.

Conclusion

Another crucial factor to take into account is the possibility that LDCT screening will allow for the early detection of other prevalent conditions, such as cardiovascular disease and chronic obstructive pulmonary disease, as well as serve as a motivator for some individuals to give up smoking and adopt healthier lifestyles. Therefore, its effects may go beyond lung cancer to lessen the burden of other widespread noncommunicable diseases. To direct patients to suitable care paths based on LDCT findings, clear management procedures would be necessary, much as they are with incidental nodule management protocols.

This would entail moving away from indication-specific care pathways to a multidisciplinary, multidisease approach and necessitate close collaboration between pulmonologists, cardiologists, and other medical specialists, supported by a thorough electronic medical record system that connects various care settings.

The choice to fund extensive LDCT screening initiatives will ultimately depend on political will and wisdom. It is regrettable that the rate of adoption in Europe has been so delayed given the sophistication of the data supporting LDCT screening.

The COVID-19 pandemic's pressures have obviously slowed things down, but they are not the main cause. Smokers' stigma, underlying beliefs that lung cancer is a self-inflicted disease, and potential government resistance to long-term investment in a comprehensive prevention programme are all potential contributory causes.

The COVID-19 pandemic has severely impacted lung cancer outcomes, making it more urgent than ever to turn the tide on lung cancer. The best method to turn lung cancer from a lethal disease into a manageable one is through early identification. Governments now have a rare chance to design the most locally suitable, effective, efficient, and equitable lung cancer screening programmes inside their health systems, building on decades of study.

References

1. Sung, Hyuna, et al. "Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries." *CA: a cancer journal for clinicians* 71.3 (2021): 209-249.
2. Luengo-Fernandez, Ramon, et al. "Economic burden of cancer across the European Union: a population-based cost analysis." *The lancet oncology* 14.12 (2013): 1165-1174.
3. Field, John K., et al. "Lung cancer mortality reduction by LDCT screening: UKLS randomised trial results and international meta-analysis." *The Lancet Regional Health-Europe* 10 (2021): 100179.
4. de Koning, Harry J., et al. "Reduced lung-cancer mortality with volume CT screening in a randomized trial." *New England journal of medicine* 382.6 (2020): 503-513.
5. National Lung Screening Trial Research Team. "Reduced lung-cancer mortality with low-dose computed tomographic screening." *New England Journal of Medicine* 365.5 (2011): 395-409.
6. Van Meerbeeck, Jan P., and Caro Franck. "Lung cancer screening in Europe: where are we in 2021?." *Translational Lung Cancer Research* 10.5 (2021): 2407.
7. Rzyman, Witold, Edyta Szurowska, and Mariusz Adamek. "Implementation of lung cancer screening at the national level: Polish example." *Translational Lung Cancer Research* 8.Suppl 1 (2019): S95.
8. Vaccarella, Salvatore, et al. "Reducing social inequalities in cancer: setting priorities for research." *Reducing social inequalities in cancer: evidence and priorities for research* (2019).