2024

Accelerating action: lessons from lung cancer screening in Central and Eastern Europe

LUNG CANCER POLICY NETWORK

Institute for Social Policy Development

Introduction

On the 14th of May, 2024, the Lung Cancer Policy Network and the Institute for Social Policy Development jointly organized an in-person roundtable titled „Accelerating action: lessons from lung cancer screening in Central and Eastern Europe (CEE)" at the Crowne Plaza Hotel in Warsaw, Poland. The event brought together oncologists, pulmonologists, radiologists, screening leads, data scientists, industry representatives, and other stakeholders to generate recommendations on how to facilitate the implementation of LDCT screening across the CEE region.

From the outset, participants in the roundtable were emphatic about the importance of the event and the Network's role in promoting the earlier detection of cancer. Notably, Network member Prof. Witold Rzyman started the discussion by noting, „Lung cancer screening is the biggest achievement in the field for decades." He went on to say that new initiatives, such as MULTIPREVENT, can help improve implementation by determining the risk factors for lung cancer and its comorbidities, including the detection of other pulmonary diseases during lung cancer screening.

The CEE region faces unique challenges, including a rising prevalence of lung cancer among women and a complex reimbursement and funding model. However, smoking remains a major issue. According to Sebastian Schmidt of Siemens Healthineers, „Here we have the highest incidence of lung cancer due to above-average smoking rates caused by delayed tobacco-control measures." He continued, „The region is leading in terms of lung cancer screening implementation, with the four most advanced programs in the EU-27." Schmidt also noted that the region is particularly suited for screening implementation due to the presence of strong screening programs for TB and other diseases within many of its healthcare systems.

The aim of the event was to raise the awareness of policymakers, patient advocates, and medical experts awareness of the opportunity that LDCT screening implementation offers the CEE region;

it also proposed to bring together stakeholders to catalyze relationships at the local level. The event further aspired to:

- Position lung cancer as a high priority for decision-makers by presenting the current status of lung cancer screening and experiences from across the region
- Create greater awareness of the need for lung cancer screening implementation
- Provide consensus-driven insights from experts on how to implement lung cancer screening effectively, based on the CEE context
- Foster relationships to facilitate collaboration and share CEE screening strategies

The event was an opportunity to generate recommendations to enable the implementation of lung cancer screening across the CEE region. A post-event report summarized the discussions and synthesized recommendations that arose from the group discussion.

The course of the discussion

The conference was opened by **Małgorzata Bogusz**, President of the Institute for Social Policy Development, Member of the European Economic and Social Committee (EESC), and rapporteur of the EESC's opinion on Europe's Beating Cancer Plan. As she emphasized, the Cancer Plan is an unprecedented EU strategy that is more than just a document – it's a commitment. It prioritizes prevention, early detection, and equitable access to high-quality care within the European Union. Specifically, regarding lung cancer, we can draw inspiration from ambitious initiatives such as the SOLACE program, a beacon of pan-European cooperation which aims to provide valuable knowledge on implementing cost-effective lung cancer screening programs and ensuring high-risk groups have access to high-quality screening across Europe. Its mission aligns with the vision of the debate participants to enhance lung cancer screening across our continent, aiming for optimal screening that prevents thousands of unnecessary deaths.

Eleanor Wheeler, Director of Oncology at The Health Policy Partnership, presented her statements on behalf of the Lung Cancer Policy Network; a global multidisciplinary network of experts from the lung cancer and oncology community whose members include clinicians, researchers, patient organizations, and representatives, and industry partners. Its mission is to see a world where lung cancer is eliminated as a cause of death.

To achieve this, the Network engages with policymakers to make lung cancer a policy priority, advocates for the adoption of low-dose computed tomography (LDCT) screening for lung cancer, promotes early detection, and works to optimize access to lung cancer diagnoses and treatment.

The Network conducts thoughtful research and analysis, provides a forum for exchange and alliance building, and develops evidence-based resources to make clear and actionable recommendations to policymakers. Its work is non-promotional and shaped by Network members who contribute a broad range of expertise from many countries around the world.

This year, the Network has focused on engaging policymakers and supporting advocacy for lung cancer care and screening. Key outputs include reports on optimizing care pathways, frameworks for early detection, and assessments of health system readiness for low-dose computed tomography (LDCT) screening. This event aimed to elevate lung cancer as a public health priority and highlight opportunities for improving patient outcomes through proactive screening.

Wheeler emphasized the importance of building a global network to support the sharing of best practices. She stressed the need for expanding interactive forums worldwide to exchange successful strategies and accelerate progress in screening methods and policy implementation. The Network's efforts highlight a pivotal moment in advancing cancer screening practices in Central and Eastern Europe, aiming to improve early detection rates and ensure equitable access to high-quality care across the region.

Henryka Krzywonos-Strycharska, a Member of the Polish Parliament and Chair of the Parliamentary Group on Lung Diseases, renowned for her role in „Solidarity" and personally touched by lung cancer, also addressed the audience. She highlighted the medical community's emphasis, discussed during the Parliamentary Group on Lung Diseases, on how screening can significantly reduce cancer-related deaths. Reflecting on her own experience, Krzywonos-Strycharska shared that she discovered her illness by chance and was fortunate to receive exceptional care from dedicated doctors. However, she also recounted encounters with many individuals who received their diagnoses too late, often leading to devastating outcomes. Krzywonos-Strycharska also emphasized that, as a Member of Parliament, she promises the gathered experts that she will do everything possible to help with whatever challenges may arise.

Professor Witold Rzyman from the Medical University of Gdańsk emphasized the importance of collaboration with public institutions and policymakers to ensure extensive lung cancer screening. He highlighted that lung cancer screening saves lives and noted that in our CEE region, 16,000 individuals could potentially be saved each year.

Prof. Rzyman also elaborated on the grant concerning multimorbidity that the Medical University of Gdańsk received from the Medical Research Agency. This grant, named MULTIPREVENT, aims to determine how to use additional findings from LDCT imaging and how to incorporate the detection and management of comorbidities into lung cancer screening. Ultimately, they hope to propose a universal health program applicable to the non-smoking population.

Prof. Rzyman emphasized that, in order to implement effective lung cancer screening programs, understanding and support from the government is necessary.

Penilla Gunther, a member of the EU Cancer Mission Board, emphasized during the event the critical need to integrate lung cancer screening into national health priorities across Europe. Drawing from her extensive experience, Gunther highlighted the importance of the Europe's Beating Cancer Plan, which aligns with the Horizon Program to provide substantial funding (€95.51 billion from 2021 to 2027) for cancer-related projects.

As Gunther underlined, lung cancer remains a major public health issue in Europe, with nearly 500,000 new cases in 2020. Many of these cases could have been prevented or diagnosed earlier. Gunther stressed that effective screening programs are essential to reducing lung cancer's high mortality rate. She noted that lung cancer screening is not yet a priority in all European countries, citing growing pressure in Sweden for such initiatives. During her speech, she outlined the four main objectives of the Europe's Beating Cancer Plan:

- Raising Cancer Awareness: Educating the public on early detection and preventive measures.
- Prevention Initiatives: Reducing exposure to risk factors like tobacco and alcohol.
- Enhancing Diagnostics and Treatments: Implementing comprehensive screening and providing diverse treatment options.
- Improving Quality of Life: Supporting patients financially and socially, including initiatives like the „Right to be Forgotten."

As explained by the speaker, the key goal is to reduce disparities in cancer care across Europe by expanding screening programs to include lung, gastric, and prostate cancers. Establishing standardized cancer care processes, as seen in Denmark and Sweden, is also vital for improving patient outcomes.

Concluding her speech, Gunther called for collective efforts to raise awareness, promote early detection, and ensure equitable access to quality cancer care across Europe. By working together, European countries can significantly reduce the incidence and mortality of lung cancer, improving the lives of many individuals.

Subsequently, **Assistant Professor Kristina Krpina**, acting as the national coordinator for pulmonology in the Croatian lung cancer screening program, provided a detailed overview of the

program's efforts and achievements since its inception in October 2020. The primary aim of the program is to reduce lung cancer mortality rates through early detection and effective treatment.

Initially aiming for a response rate of over 50%, the program has surpassed expectations, achieving an impressive response rate of over 80%. Early detection of lung cancer is vital for effective treatment. The program highlights recent advancements in therapeutic approaches, including neoadjuvant and adjuvant therapies, which now encompass not only chemotherapy but also immunotherapy, double immunotherapy, and targeted therapies.

The program is fully reimbursed by the Croatian healthcare system, covering all stages from primary to tertiary care, including referrals from general practitioners (GPs) to university hospital centers. A notable feature of the program is its comprehensive digitalization, integration of artificial intelligence, and strategic involvement of GPs. The screening targets high-risk populations aged 50 to 75 years. Each participant undergoes an LDCT scan and is provided with informed consent detailing the benefits and limitations of the procedure. Additionally, participants receive information about the Smoking Cessation School.

The program boasts a fully digitalized workflow, from the initial GP referral to the radiologist's report. If pathological findings are detected during the LDCT scan, the participant is referred to a lung nodule clinic for further examination. Participants with clear scans are scheduled for annual or biannual follow-ups. The program began with 16 radiology centers and has since expanded to 22 centers. By the end of December 2023, over 30,000 scans had been conducted, screening more than 26,000 participants and identifying over 300 cancers, including lung cancers and cancers in other sites.

All high-risk participants undergo regular radiation dose measurements, with each radiology center monitoring doses bi-weekly to ensure safety. The program has achieved a significant stage shift in cancer diagnosis, reducing the percentage of fourth-stage

non-small-cell cancers from 29% to 35% in the first stage.This positive shift toward earlier-stage diagnoses is expected to improve, with further advances to be discussed in future panels.

The Croatian lung cancer screening program has made remarkable progress in a short period, positioning itself as a role model within the European Union. The program's success in early detection and improved treatment outcomes underscores the potential benefits of well-coordinated lung cancer screening initiatives. Looking forward, continued efforts and strategic enhancements are anticipated to further reduce lung cancer mortality rates and improve patient outcomes across the region.

A crucial factor in the program's success has been securing policymaker buy-in. Professor Krpina emphasized that connecting with and advocating to the Minister for Health was instrumental in obtaining funding and driving policy action for the program. This direct engagement with high-level policymakers proved to be a key factor in garnering support and resources necessary for the program's implementation and expansion.

The success of the Croatian lung cancer screening program underscores the vital importance of direct policymaker engagement in public health initiatives. By actively involving and educating key decision-makers, the program was able to secure the necessary backing to move forward. This approach has been pivotal in laying the groundwork for potentially expanding to a national screening program, demonstrating that direct policymaker engagement is essential for the growth and sustainability of such critical public health efforts.

Other CEE countries should consider adopting similar comprehensive screening programs, leveraging digitalization and AI to optimize workflows. Efforts to educate the public about the importance of early lung cancer detection and available screening programs should be increased. It is crucial to ensure that advances in therapeutic approaches, such as immunotherapy and targeted therapies, are accessible to all patients diagnosed

with lung cancer. Regular radiation dose monitoring should be implemented to ensure the safety of participants undergoing LDCT scans. Collaboration among healthcare providers, policy-makers, and stakeholders should be fostered to create a cohesive and effective approach to lung cancer screening and treatment.

Professor Vladimír Koblížek from University Hospital Hradec Králové provided an insightful update on the state of lung cancer screening in Czechia. Lung cancer remains the leading cause of death among both males and females in Czechia. This concerning statistic is corroborated by extensive government data that details mortality and incidence rates. Currently, the majority of lung cancer patients in Czechia are diagnosed at stages 3 or 4, with only 15% detected at stages 1 or 2, a trend consistent with other nations. Two decades ago, the incidence of lung cancer was nearly equal to its prevalence due to the high mortality rate within a year of diagnosis. However, significant progress over the last 20 years, particularly in immunotherapy and advanced treatments for stages 3 and 4, has improved survival rates.

As explained by Prof. Koblížek, Czechia is now carrying out a pilot of the LDCT screening program modeled on successful initiatives in Poland, Hungary, and Croatia, to see if the nationwide program would be effective. This program targets individuals aged 55 to 74 who are current or former smokers with a smoking history of at least 20 years. The screening process relies heavily on LDCT scans. GPs play a pivotal role by informing patients and conducting initial screenings. Patients who meet the criteria are referred to pulmonary physicians, who then direct them to radiology for further evaluation. In radiology, patients receive outcomes categorized as positive, intermediate, or negative.

This screening initiative faces several challenges, particularly with data management and timely statistical analysis. As of September 2023, over 16,000 patients had been screened by GPs, but only 5,000 had been referred to pulmonary specialists, and about 7,000 had undergone LDCT scans. Seasonal variations have also been observed, with a „summer effect" causing a decrease in new patient numbers but a slight increase in overall screenings. There are also geographical disparities: larger cities, especially those with universities, see higher participation rates, whereas smaller, border-adjacent towns have lower coverage. Initial results show that less than 4% of patients had positive findings on their CT scans, nearly all of which were malignant. Managing the intermediate zone, where findings are ambiguous, requires careful decision-making regarding follow-up intervals, typically one to three months.

The pilot program has demonstrated promising results, markedly increasing the early detection rate, with nearly 60% of patients now being diagnosed at stages 1 or 2, compared to the previous 15%. This substantial improvement underscores the potential of the program to transform into a standard nationwide practice, similar to the successful model seen in Croatia. Prof. Koblížek emphasized the critical need to continue and expand this program, addressing existing challenges to ensure its long-term success. The hope is that robust data from these screenings will strengthen the case for comprehensive lung cancer screening programs,

ultimately leading to earlier diagnoses and improved outcomes for lung cancer patients across Czechia.

Professor Mariusz Adamek, from the Medical University of Silesia and Medical University of Gdańsk, opined that in Poland the efforts and initiatives can be divided into two stages. The first stage starting in 2008, consisted of local programs and a three-year lung cancer screening program funded by the EU's European Social Fund, which resulted in approximately 36,000 screenings. The second stage includes participation in the Solis EU trial. As of March 2024, the program is funded by the Ministry of Health and the National Health Fund (NFZ), making Poland one of the few countries to have this opportunity.

Almost 40,000 CT scans have been performed, with 18,500 screenings across six macroregions. Over 14TB of data has been accumulated, which will be analyzed by relevant experts from the Warsaw University of Technology, as well as the Silesian University of Technology. The initial meeting took place in 2017 when experts were invited to the Senate Commission of Poland, leading to the establishment of a steering committee.

The uniqueness of this program lies in its database, capable of processing 100,000 entries per day, adhering strictly to the screening protocol with follow-ups every 3, 6, or 12 months. It should be mentioned that a high return rate of 2.3 CT scans per patient over three years has been achieved. Key stakeholders include Members of Parliament, representatives of the Ministry of Health, the National Health Fund (NFZ), and the agency responsible for assessing medical technology (AOTMiT).

Continuous effort and relevant coordination are required to overcome bureaucratic barriers and ensure the program's success. Polish experts adapt to new recommendations, such as those from the Nelson study in the New England Journal of Medicine. Eligibility criteria follow.

Dr Anna Kerpel-Fronius from the National Korányi Institute of Pulmonology provided an overview of Hungary's lung cancer screening projects over the past decade. These initiatives have demonstrated the effectiveness of low-dose CT scans in detecting lung cancer early.

The first project, involving 2,000 participants aged 50-79, found a 1.5% lung cancer detection rate. The Huntress II project established 18 screening centers nationwide, screening over 4,000 people despite COVID-19 disruptions. A current project focuses on real-life screening effectiveness in small towns near Budapest, while another targets women, patients with underlying lung diseases, and socially disadvantaged individuals.

Key findings include the cost-ineffectiveness of screening never-smokers and a significant stage shift in diagnosis, with over 60% of screened patients diagnosed at stage one compared to 51% of non-screened patients at stage four. Health economic data suggest that adherence to screening criteria can make the process cost-effective and sometimes cost-saving.

As President-Elect of the Society of Hungarian Radiologists and a board member of the Hungarian Society of Pulmonologists, Dr Kerpel-Fronius advocates for

implementing lung cancer screening programs. Every project includes a smoking cessation component, recognizing its importance in reducing lung cancer incidence.

Professor Jacek Jassem, President of the Board of the Polish League Against Cancer, highlighted during the discussion his opinion that screening without anti-tobacco intervention is unethical. In his view, structured anti-tobacco intervention should be an integral part of the screening process; otherwise, it becomes a license to continue smoking.

Professor Joanna Chorostowska-Wynimko from the Institute of Tuberculosis and Lung Diseases in Warsaw, and Vice President of the European Respiratory Society, said that we are currently at a very important point and thus we should focus on implementing the best practices, and the SOLACE program is mostly about identifying and describing the best practices from programs in Central and Eastern Europe. But also, this is about identifying potential obstacles and providing the recipe, how to really tackle it with practical solutions. Prof. Chorostowska-Wynimko believes that without involving different stakeholders – not only clinicians, politicians, and those who are in charge of funds of money, but also experts in organizing health care – it would never be as efficient as it could be.

Experts' conclusions and recommendations

The event „Accelerating action: lessons from lung cancer screening in Central and Eastern Europe (CEE)" showcased significant progress and challenges in the implementation of lung cancer screening programs across the region.

During the discussion, the participants highlighted key themes, emphasizing the importance of addressing gaps and obstacles in these specific areas. They underscored the critical role of early detection, the screening impact on shifting diagnosis stages, as well as the need to ensure ongoing advocacy and policy support. Hence, the main focus areas were:

1. **Screening Programs Effectiveness:** Data from various pilot programs highlighted a substantial stage shift toward earlier diagnoses with the implementation of LDCT scans, demonstrating the efficacy of screening in improving patient outcomes.

2. **Challenges in Implementation:** Challenges such as logistical issues, seasonal variations, and geographical disparities in participation require targeted strategies to ensure equitable access and effective program delivery.

3. **Policy and Advocacy:** The role of advocacy, policy alignment, and integration within existing healthcare systems emerged as critical factors in the successful implementation and sustainability of screening initiatives.

Following the identification of current challenges, the following list of recommendations can be drawn from the discussion that took place:

1. **Collate and Share Data:** Facilitate the collation and sharing of data from existing screening programs to demonstrate

their effectiveness in reducing late-stage diagnoses and improving survival rates. This data-driven approach will bolster support from policymakers and healthcare providers.

2. **Engage GPs:** Involve GPs at every stage of planning and implementing screening programs. Their pivotal role in patient education, initial screening, and referral processes is crucial for increasing participation and ensuring continuity of care.

3. **Promote Collaborative Learning:** Organize visits to successful screening programs across Europe to facilitate collaborative learning and the exchange of best practices. This approach will accelerate the adoption of effective strategies and enhance program outcomes.

4. **Utilize Patient Organizations:** Partner with patient organizations to disseminate positive messaging about screening benefits and combat the public stigma associated with smoking and lung cancer. This collaboration can foster community engagement and support for screening efforts.

5. **Leverage EU Funding:** Access available EU funding mechanisms to support the implementation and expansion of screening programs. Securing financial resources will be pivotal in scaling up successful pilot projects and ensuring sustainability.

6. **Integrate Screening into Healthcare Systems:** Integrate lung cancer screening programs as integral components of existing healthcare systems. This integration will enhance access, streamline patient pathways, and improve coordination among healthcare providers, ultimately optimizing patient outcomes.

Roundtable participants

The list of debate participants, as well as attendees, is presented below (in alphabetical order):

- Antun Aboud, University Hospital Centre Zagreb
- Mariusz Adamek, Medical University of Silesia, Medical University of Gdańsk
- Małgorzata Bogusz, Institute for Social Policy Development
- Joanna Chorostowska-Wynimko, National Institute of Tuberculosis and Lung Diseases
- Małgorzata Czajkowska-Malinowska, National Consultant in the field of Lung Diseases
- Jakub Gołąb, Institute for Social Policy Development
- Wojciech Głuszewski, Institute of Nuclear Chemistry and Technology
- Penilla Gunther, FOKUS Patient, Member of EU Cancer Mission Board
- Krzysztof Jakubiak, Editor-in-chief, mZdrowie.pl
- Jacek Jassem, Polish Cancer League
- Anna Kerpel-Fronius, National Korányi Institute of Pulmonology
- Vladimír Koblížek, University Hospital Hradec Králové, Charles University
- Kristina Krpina, University Hospital Centre Zagreb
- Henryka Krzywonos-Strycharska, Polish Parliament
- Radosław Lubera, Radpoint, Silesian University of Technology
- Ricardo Martin, Johnson & Johnson
- Jarek Oleszczuk, nCage Therapeutics & Institute for Social Policy Development, Genomtec
- Tadeusz Orłowski, National Institute of Tuberculosis and Lung Diseases
- Joel Plaja, AstraZeneca
- Witold Rzyman, Medical University of Gdańsk
- Agnieszka Samborska, AstraZeneca
- Sebastian Schmidt, Siemens Healthineers
- Michał Smoliński, Radpoint

- Małgorzata Stelmach, MSD Polska
- Nikola Stourac, Institute of Health Information and Statistics of the Czechia
- Dorota Tuńska, Editor-in-Chief, DoZdrowia.pl
- Jacek Wcisło, Johnson & Johnson
- Eleanor Wheeler, The Health Policy Partnership on behalf of the Lung Cancer Policy Network
- Urszula Żurek-Kucharska, AstraZeneca

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This report reflects discussions from the event titled „Accelerating action: lessons from lung cancer screening in Central and Eastern Europe (CEE)", organized jointly by the Lung Cancer Policy Network and the Institute for Social Policy Development.

The Lung Cancer Policy Network is a global alliance of multidisciplinary experts from the lung cancer and oncology community, including clinicians, researchers, patient organizations, and industry partners. The network is funded by AstraZeneca, Guardant Health, Intuitive, Johnson & Johnson, MSD, and Siemens Healthineers. The secretariat is provided by The Health Policy Partnership, an independent health research and policy consulting firm. All Network products are non-commercial, evidence-based, and shaped by members, who contribute their time free of charge.