



## Indonesian Society of Respiriologists Position Paper on Lung Cancer Control in Indonesia

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### Abstract

Lung cancer is a major health concern in Indonesia due to its increasing prevalence, late-stage diagnosis, younger population, and high mortality. Addressing this issue requires nationwide implementation of comprehensive lung cancer control, which includes risk reduction and prevention strategies, focusing on tobacco control and air pollution mitigation. Screening with low-dose computed tomography (LDCT) and early detection in symptomatic patients, along with TB screening programs and all non-communicable diseases, is strongly recommended to enhance early case findings, treatment effectiveness, and overall patient outcomes. A multidisciplinary team (MDT) approach is important to ensure accurate diagnosis and comprehensive care. Moreover, the integration of palliative care at the early stages of advanced lung cancer is vital, focusing on symptom management and enhancing the quality of life for patients. While national guidelines are available for the diagnosis and treatment of lung cancer, significant disparities in healthcare access remain across Indonesia. Thus, it is essential to improve universal health coverage and referral systems to guarantee equal access to lung cancer care for patients at all levels through advocacy and ease of access.

**Keywords:** early detection, lung cancer control, screening

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## INTRODUCTION

Lung cancer is the most common cancer among men in Indonesia, accounting for 14.1% of cases. It ranks third in terms of new cases (8.8%), after breast cancer (16.6%) and cervical cancer (9.2%) in females.<sup>1</sup> Despite the implementation of universal health coverage, the prevalence of lung cancer is increasing. It is affecting younger individuals as compared to world data and being diagnosed at late stages with poor prognosis.<sup>2</sup> In this position statement, the Indonesian Society of Respirology emphasizes comprehensive lung cancer control in Indonesia. The aim of the position statement is to develop the action plan for National Lung Cancer Control, to promote a comprehensive approach to lung cancer control, to increase access to lung cancer control for best practice and advocacy, to improve survival, and to improve the quality of life of survivorship.<sup>3,4</sup>

The approach to lung cancer control involves preventive efforts in cancer control, risk factor management, lung cancer screening, early detection and management, the establishment of early definitive diagnosis, best practice treatments, evaluation and subsequent management, a multidisciplinary approach, and preparation for a dignified end of life. This holistic and comprehensive strategy must be implemented at every stage of cancer management.<sup>2,3</sup>

## RISK REDUCTION AND PREVENTION

### Tobacco control

The national tobacco control program, including tobacco products and e-cigarettes, employing MPOWER strategies, aims to reduce tobacco use through several measures. These measures include establishing a specialized agency and implementing government policies, such as monitoring tobacco use, providing support to help people quit smoking, raising awareness about the dangers of tobacco, enforcing bans on tobacco advertising, promotion, and sponsorship, and increasing taxes on tobacco products and e-cigarettes. Despite the revenue from tobacco taxes,

Indonesia continues to incur massive health and economic losses due to tobacco-related health issues.<sup>3</sup> Indonesia has yet to sign the WHO Framework Convention on Tobacco Control ratification.<sup>4-6</sup>

### Smoking cessation and e-cigarette control

The approach to smoking cessation should be conducted throughout the process of controlling lung cancer, and the doctor should reevaluate the patient during each visit. Quitting smoking is a complex behavior influenced by internal factors, such as knowledge, attitudes, beliefs, and core values, as well as external factors, such as social support, media, the healthcare system, and societal laws and regulations.<sup>4-6</sup> Smoking cessation and e-cigarette control should be educated through the medical faculty curriculum.

### Occupational and Environmental Control

The incidence of lung cancer in non-smokers is increasing, particularly among women, with conflicting results in morbidity and mortality rates. This increase can be attributed to exposure to air pollution, radon, or secondhand smoke.<sup>7,8</sup> Air pollution is a significant health risk in Indonesia, particularly in Jakarta, where PM2.5 levels exceed WHO guidelines, according to 2019 data.<sup>4</sup> The National Ambient Air Quality Standard is less stringent than WHO's, highlighting the need for strict regulations. To address this issue, the government must enhance policies and foster collaboration across sectors, including academia and professional organizations. The lung cancer control program healthy air and lifestyle.<sup>6,7,9,10</sup>

## LUNG CANCER SCREENING

Lung cancer screening is a crucial initiative aimed at detecting lung cancer in high-risk groups before the onset of symptoms. This proactive approach is conducted voluntarily and is divided into two main categories based on the patient's risk profile. Group A includes individuals over the age of 45 who have a history of smoking or have quit

smoking within the last 10 years, those exposed to silica or other carcinogenic substances in their workplace, passive smokers, and individuals with a history of pulmonary tuberculosis (TB), pulmonary fibrosis, or fibrotic lesions. Group B consists of individuals over the age of 40 who are considered to be at high risk and have a family history of cancer.<sup>10,11</sup>

The guidelines for diagnosing and managing lung cancer in Indonesia recommend that high-risk patients undergo chest screening with low-dose computed tomography (LDCT).<sup>8,11</sup> LDCT is preferred over chest X-rays (CXR) due to its higher sensitivity in detecting early-stage lung cancer.<sup>5</sup> The National Lung Screening Trial (NLST) found that LDCT reduces lung cancer mortality by 20% compared to CXR, with a relative risk of 0.80 over a median follow-up of 6.5 years.<sup>8,11</sup> LDCT screening must meet specific technical criteria: at least a 16-slice Multislice CT (MSCT) with a gantry rotation time of  $\leq 0.75$  seconds, a radiation dose of 3-5 millisieverts (mSv) for individuals with a BMI  $\leq 30$ , slice width  $\leq 2.5$  mm (preferably  $\leq 1$  mm), and detector collimation under 1.5 mm.<sup>11</sup>

Accurate reporting of LDCT findings is crucial for effective lung cancer screening. Detected lung nodules or lesions must be detailed, including their anatomical location (specific lung segment and lobe), size, attenuation (e.g., soft tissue, calcified, or fatty), opacity (solid, ground-glass, or part-solid), and margins (well-defined, lobulated, or spiculated). This thorough documentation is essential for monitoring changes in future exams. Any other abnormal findings should also be reported for further evaluation.<sup>11</sup>

Although lung cancer screening guidelines are available in Indonesia, universal health coverage is recommended to include a nationwide mass screening program, as mentioned in the previous consensus.<sup>10</sup> The lung cancer screening program should be integrated into the national TB control program, the COPD screening program, and other non-communicable disease (NCD) programs. Tobacco control, such as smoking cessation, including e-cigarette cessation, is an essential component and should be included as part of the lung

cancer screening program. Lung cancer screening is also advised in person for those with a history of TB, lung fibrosis, COPD, a history of radiation exposure, or occupational exposure to carcinogens (as classified by the International Agency for Research on Cancer, IARC).<sup>2,10</sup>

## EARLY DETECTION

Early detection, as previously mentioned, through LDCT scans of the thorax and early diagnosis through pathological examination, is crucial for identifying lung cancer in individuals who exhibit symptoms indicative of the disease. These diagnostic efforts are specifically tailored to the symptoms present in the individual, aiming for timely intervention to improve patient outcomes. Symptoms commonly associated with lung cancer include persistent coughing, hemoptysis, chest pain, shortness of breath, swelling or lumps in the neck, hoarseness, unexplained weight loss, and other related signs. Prompt recognition of these symptoms is essential for early diagnosis and treatment.<sup>2</sup>

For symptomatic individuals, the primary method for early lung cancer detection is a CT scan of the chest with contrast. This imaging technique provides detailed cross-sectional views of the chest, allowing for the identification of abnormalities in the lungs and surrounding structures. A comprehensive CT scan should cover the area from the supraclavicular to the suprarenal region. This extensive coverage ensures that any potential abnormalities are captured and evaluated.

If the initial CT scan does not reveal any abnormalities, it is recommended that the individual undergo repeat screening every two years. This follow-up screening is vital for monitoring any changes that may occur over time and for ensuring that any emerging lung cancer is detected at the earliest possible stage.<sup>2,10</sup>

Beyond lung cancer, early detection efforts must also include screening for TB and particularly in individuals who are at high risk and suspected of having pulmonary TB despite testing negative for *Mycobacterium tuberculosis* (Mtb) in their sputum. TB

and lung cancer share several risk factors and symptoms, making it essential to consider both conditions during the diagnostic process. This dual-focus approach is especially critical in regions where TB is prevalent, such as Indonesia.<sup>2,9,12</sup>

## **REFERRAL SYSTEM, REGISTRY, AND DISEASE MANAGEMENT**

Efficient referral systems are essential for patients proceeding with further evaluation in the diagnostic process. Patients suspected of lung cancer should undergo complete staging, pathological, and molecular diagnostics as soon as possible to ensure the earliest possible disease staging. Accessible diagnostic systems such as CT scan, MRI, bronchoscopy and transthoracic biopsy, advanced interventional pulmonology procedures, pathological laboratories, and access to molecular testing should be within reach for hospital-treated lung cancer patients. A short turn-around time (TAT) of the diagnosis process can be achieved through continuous training, rapid pathological sampling, and coordination of the referral system, which should be emphasized in managing lung cancer patients.

The diagnosis and treatment of lung cancer have advanced rapidly with the discovery of new molecular biomarkers that improve survival rates. Therefore, it is necessary to timely update the available guidelines for diagnosing and managing lung cancer to align with standards and be uniformly applied, and nationwide training and dissemination of knowledge and experience.

The disparity in human resources and equipment or system facilities across various healthcare institutions should not hinder efforts in screening, early detection, definitive diagnosis, and lung cancer management through a tiered referral system. Therefore, a professional guide is required to ensure that each facility can optimally contribute to the management of lung cancer in Indonesia. The lung cancer registry is important as it is the fundamental aspect of demography and unique profiling of lung cancer in Indonesia.

## **ACCESS TO DIAGNOSTIC, THERAPY, AND CLINICAL TRIALS**

The availability of essential lung cancer management, such as advanced diagnostic procedures, surgery, chemotherapy, radiotherapy, and advanced treatments such as targeted therapy or immunotherapy, hopefully can be accessed by all patients through universal health coverage to ensure the best available quality of care and inclusivity of cancer care.

Early access, fast drug regulatory approval, and access to clinical trials are needed to accelerate a high standard of care for lung cancer patients.

## **A MULTIDISCIPLINARY APPROACH**

Each lung cancer care is a complex process, and personalized therapy is needed to deliver quality management. Early treatment following guidelines and proper evaluation of treatment options are crucial for the best outcomes. A multidisciplinary approach is essential in the diagnostic or initial treatment, such as in a perioperative setting to develop a comprehensive treatment plan, especially when combining therapies such as chemotherapy, radiotherapy, or surgery is needed.

## **ROLE OF PULMONOLOGIST**

A pulmonologist has a central key role in lung cancer control, including advocacy, risk reduction, prevention, screening, early diagnosis and treatment, registry, and continuum of care. Pulmonologists play a key role in the diagnosis, staging, and treatment; they lead and participate in the multidisciplinary efforts in lung cancer comprehensive management. Collaboration with pathologists, thoracic surgeons, medical oncologists, radiation oncologists, radiologists, palliative medicine specialists, and other specialties is encouraged by the Indonesian Society of Respiriology. A pulmonologist has a role in establishing diagnostic algorithms and proper treatment plans for lung cancer. Continuous specific training in lung cancer diagnostics and therapy will deliver quality service.<sup>13–18</sup>



## LUNG CANCER SURVIVORSHIP

Palliative care ideally begins early after diagnosis to improve the quality of therapy as part of a holistic continuum of care. However, usually perceived as providing patients with advanced stages of lung cancer, focusing on managing cancer-related symptoms, discussing expectations, and setting goals of care, including end-of-life care. These discussions should involve not only the patient and their family but also members of the medical team to shift the focus toward ensuring comfort and dignity in death, from primary care services to the highest referral system.<sup>4</sup>

Common symptoms in patients with advanced lung cancer include pain, dyspnea, cough, fatigue, restlessness, delirium, terminal secretions, and psychosocial issues. Among the comfort measures for palliation, oxygen therapy is frequently prescribed for long-term support in-home care. This palliative care should be covered by universal health care and should be accessible to ensure the inclusivity of the program.<sup>4</sup>

## CONCLUSION

Effective lung cancer control requires a comprehensive approach, from managing risk factors, screening, and early detection to early diagnostic procedures to providing treatments, access to treatments and clinical trials, and palliative care for a dignified end of life. A comprehensive cancer care is essential to ensure collaborative, personalized care throughout the process and to ensure the delivery of high quality of life and quality of service for lung cancer. Pulmonologists have a central role in lung cancer control in Indonesia, including advocacy, risk reduction, prevention, screening, early diagnosis and treatment, registry, and continuum of care.

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