

Sita Laksmi Andarini

Indonesian Society of Respiriology Position Paper on Lung Cancer Control in Indonesia

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Original Article

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

Sita Andarini,¹ Andintia Aisyah Santoso,¹ Mochammad Aris Arfiansyah,¹ Elisna Syahrudin,¹ Jamal Zaini,^{1,2} Andika Chandra Putra,^{1,2} Ferry Dwi Kurniawan,³ Sabrina Ermayanti,⁴ Noni Novisari Soeroso,⁵ Sri Melati Munir,⁶ Andreas Infianto,⁷ Ana Rima,⁸ Ungky Agus Setyawan,⁹ Laksmi Wulandari,¹⁰ Haryati Haryati,¹¹ Ida Ayu Jasminarti,¹² Moulid Hidayat,¹³ Arif Santoso¹⁴

¹Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Indonesia, Persahabatan Hospital, Jakarta, Indonesia ²Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Indonesia Hospital, Depok, Indonesia ³Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Syiah Kuala, Banda Aceh, Indonesia ⁴Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Andalas, Padang, Indonesia ⁵Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Sumatera Utara, Medan, Indonesia ⁶Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Riau, Pekanbaru, Indonesia ⁷Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Lampung, Bandar Lampung, Indonesia ⁸Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Sebelas Maret, Surakarta, Indonesia ⁹Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Brawijaya, Malang, Indonesia ¹⁰Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Airlangga, Surabaya, Indonesia ¹¹Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Lambung Mangkurat, Banjarmasin, Indonesia ¹²Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Udayana, Denpasar, Indonesia ¹³Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Mataram, Lombok, Indonesia ¹⁴Department Pulmonology and Respiratory Medicine, Faculty of Medicine Universitas Hasanuddin, Makassar, Indonesia

Abstract

Background: Lung cancer is a major health concern in Indonesia due to its increasing prevalence, late-stage diagnosis, and high mortality. Addressing this issue requires implementation of risk reduction and prevention strategies, focusing on tobacco control and air pollution mitigation. Smoking cessation is a key part in every stage of lung cancer control. Screening with Low-Dose Computed Tomography (LDCT) and early detection in symptomatic patients is strongly recommended to enhance treatment effectiveness and overall patient outcomes. The importance of a multidisciplinary team (MDT) approach can not be overstated, which ensures accurate diagnosis and comprehensive care. Moreover, the integration of palliative care at early stages of advanced lung cancer is vital, by 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.

Keywords: control, early detection, lung cancer, screening

Corresponding Author:

Sita Andarini | Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Indonesia, Persahabatan General Hospital, Jakarta, Indonesia | sitaandarini@yahoo.com

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INTRODUCTION

Lung Cancer is the most common cancer among men in Indonesia, accounting for 14.1%. It ranks third in terms of new cases (8.8%), after breast cancer (16.6%) and cervical cancer (9.2%).¹ Despite the roadmapping of lung cancer control in Indonesia and the implementation of Universal Health

Coverage, the prevalence of lung cancer is increasing. It is affecting younger individuals, being diagnosed at late stages with poor prognosis, and at a median age compared to world data.²

Lung cancer requires prompt and targeted management. Diagnosing this disease demands specialized skills and facilities, as well as a close,

multidisciplinary approach. Early detection of lung cancer significantly benefits patients, and a quicker diagnosis can improve the quality of life for patients, even though it may not cure the disease. The goal is to provide timely and appropriate treatment as early as possible.²

The approach to lung cancer involves several steps, including preventive efforts in cancer control, risk factor management, screening, early detection, establishment of a definitive diagnosis, initial treatment, evaluation of treatment, subsequent line management, and preparation for a dignified end of life. This holistic and comprehensive strategy must be implemented at every stage of cancer management.²

A vital component of lung cancer detection, whether through screening or early diagnosis, is incorporating smoking cessation efforts. Smoking is the most significant risk factor for lung cancer, and encouraging individuals to quit smoking is crucial. Smoking cessation should be integrated into all lung cancer screening and detection efforts as it not only reduces the risk of lung cancer but also improves overall lung health and lowers the risk of other smoking-related diseases.²

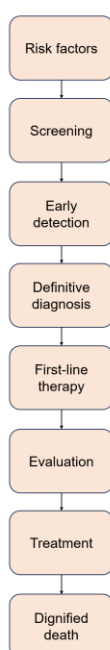


Figure 1. Lung cancer control steps

Risk reduction and prevention

a. Tobacco control

The national tobacco control program, 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. Despite the revenue from tobacco taxes, Indonesia continues to incur substantial economic losses due to tobacco-related health issues.³

b. Smoking cessation

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.

c. Occupational and Environmental control

Air pollution is a significant health risk in Indonesia, particularly in Jakarta, where PM2.5 level exceeds WHO guidelines according to 2019 data.⁴ The National Ambient Air Quality Standard is less stringent than WHO's, highlighting the need for stricter regulations. To address this issue, the government must enhance policies and foster collaboration across sectors, including academia and professional organizations.

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, 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.²

The guidelines for diagnosing and managing lung cancer in Indonesia recommend that high-risk patients undergo chest screening with Low-Dose Computed Tomography (LDCT).¹ LDCT is preferred over chest X-rays due to its **higher sensitivity in detecting early-stage lung cancer**.⁵ The National Lung Screening Trial (NLST) found that LDCT reduces **lung cancer mortality by 20% compared to chest X-rays**, with a relative risk of 0.80 over **a median follow-up of 6.5 years**.⁶ LDCT screening must meet specific technical criteria: at least a 16-slice Multislice CT (MSCT) with a gantry rotation time of ≤ 0.75 seconds, a radiation dose of 3-5 millisieverts (mSv) for individuals with a BMI ≤ 30 , slice width ≤ 2.5 mm (preferably ≤ 1 mm), and detector collimation under 1.5 mm.²

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.²

Although there are lung cancer screening guidelines available in Indonesia, it is recommended that Universal Health Coverage includes a nationwide mass screening program, as mentioned in the previous consensus. The lung cancer screening program should be integrated into the national tuberculosis control program and/or COPD screening program. Tobacco control, such as **smoking cessation**, is **an essential component of the lung cancer screening program**.

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. Currently, it is highly recommended that non-smokers aged 40 and above undergo screening with LDCT.

Early Detection

Early detection as previously mentioned **by low-dose CT scan of thorax (LDCT)** is crucial for identifying lung cancer in individuals who exhibit symptoms indicative of the disease. These diagnostic efforts are specifically tailored to the symptoms a person presents, aiming for timely intervention to improve patient outcomes. Symptoms commonly associated with lung cancer include persistent coughing, hemoptysis (coughing up blood), 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.²

Several risk factors, also increase the likelihood of lung cancer, including radiation exposure, occupational exposure to carcinogens (as classified by the International Agency for Research on Cancer, IARC), a personal or family history of cancer, and a history of lung diseases such as chronic obstructive pulmonary disease (COPD), tuberculosis, or idiopathic pulmonary fibrosis.²

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.²

Beyond lung cancer, early detection efforts must also include screening for tuberculosis (TB), 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.^{2,7}

Referral system

Referral systems are essential for patients proceeding with further evaluation in the diagnostic process. Patients suspected of having lung cancer should undergo complete staging, pathological, and molecular diagnostics as soon as possible to ensure the earliest possible disease staging. The diagnosis and treatment of lung cancer have advanced rapidly with the discovery of new biomarkers that improve survival rates. Therefore, it is necessary to revise the available guidelines for diagnosing and managing lung cancer to align with standards and be uniformly applied.

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.

Early treatment following guidelines and proper evaluation of treatment options are crucial for the best outcomes. A multidisciplinary team (MDT) is essential in the diagnostic or initial perioperative setting to develop a comprehensive treatment plan, especially when combining therapies such as chemotherapy, radiotherapy, or surgery is needed.

Lung Cancer Palliative Care

Palliative care rehabilitation ideally begins early after diagnosis to improve the quality of therapy. However, generally it is provided to patients with advanced stages of lung cancer, focusing on managing cancer-related symptoms, discussing expectations, and setting goals of 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. 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 all, being inclusive.

CONCLUSION

Effective lung cancer control requires a comprehensive approach, from managing risk factors, screening and early detection, to providing treatment and palliative care for a dignified end of life. A multidisciplinary team is essential to ensure collaborative, personalized care throughout the process. Further research and updated guidelines are needed to improve early detection and management strategies.

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