

IASLC: DEVELOPING LUNG CANCER HEALTH CARE INITIATIVES IN EMERGING HEALTH SYSTEMS

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Lung cancer – The global problem:

Lung cancer is the most common cancer worldwide accounting for 1.6 millions new cases annually, followed by breast cancer and colon cancer. In 2008, lung cancer killed 1.37 million people worldwide. Prognosis is heavily dependent on staging of the disease at diagnosis. Patients with Stage I disease may achieve a 5 year survival rate of up to 80%, while patients with Stage 4 disease may only achieve 3-5%.

The International Association for the Study of Lung Cancer (IASLC) has worked since 1974 to promote education and research in all aspects of lung cancer and thoracic malignancies, as well as encouraging worldwide cancer prevention efforts (<http://iaslc.org/>). This synopsis will provide an overview of the international problem of lung cancer in both the developed and developing nations across the world and the areas to which IASLC and its members have made significant contribution in the fields of lung cancer awareness, tobacco control, screening and early detection, lung cancer pathology staging and clinical interventions. IASLC would wish to provide advice and assistance to INCTR in developing lung cancer prevention and treatment initiatives in emerging health care systems around the world.

- **Lung cancer presentation:** Currently in the western world, over 90% of lung cancer patients are symptomatic at presentation with cough and shortness of breath being the most common presenting symptoms. Most patients have been symptomatic for a number of months prior to presenting to primary health care or a general practitioner. This is in part due to a lack of understanding of the significance of symptoms, especially where a patient has already had exacerbation of their COPD or emphysema. That is the main reason why more than two-thirds of the lung cancer patients present with metastatic disease. This issue is being tackled by many agencies in developed countries, which could be readily transferred to developing care initiatives throughout the world.
- **Lung cancer facts:** Worldwide, in 2008, lung cancer was the most frequent cancer in men, with the highest rates in

Central-Eastern and Southern Europe, Northern America and Eastern Asia. Currently, very low rates have been recorded in Middle and Western Africa, however with increased use of tobacco products this will rise significantly in future years. Worldwide, lung cancer is the fourth most common cancer in women and the second most common cause of cancer death after breast cancer. The highest incidence rate is observed in Northern America, where lung cancer is now the second most frequent cancer in women, and the lowest in Middle Africa, where it is 15th most frequent cancer. In 2008, lung cancer killed 94,640 men and 65,792 women in the US and 231,301 men and 109,059 women in China, being the leading cause of deaths from cancer in both men and women in these countries. A large number of deaths by lung cancer were also seen in other more developed countries, including Russia (50,658 men and 8,743 women) or Japan (41,110 men and 15,257 women) and less developed countries, including India (30,706 men and 96,934 women), Indonesia (14,299 women and 5,736 women) and Brazil (12,728 men and 5,524 women).

- **Lung cancer risk factors:** Clearly, tobacco use is the most important risk factor causing 71% of global lung cancer death; 60% of these deaths occur in low- and middle-income countries. Smoking causes more than 80% of lung cancer cases in men and 45% in women worldwide. But in North America and Northern Europe, more than 70% of lung cancers in women are related to smoking. Although tobacco control and education have been able to decrease smoking rates in more developed economies, the tobacco industries have increased their focus on more developing economies. Unfortunately, in many countries, the rates of smoking have not peaked – particularly in women. Therefore, unless significantly stronger tobacco control is implemented – the lung cancer epidemic will get worse in the lower resourced countries.

There are other lung cancer carcinogens, including silica, cadmium, nickel, arsenic, chromium, diesel fumes exposure to radon, beryllium and asbestos. The exposure to these

carcinogens varies largely from one country to another and from one area to another and across time, from the most developed country to the developing countries.

Although, worldwide use of asbestos has decreased, industrial consumption is increasing in many developing countries.

- ▶ **Lung cancer survival:** Overall, the 5-year survival rate of lung cancer patients is approximately 15%, whereas the 5-years survival for patients with surgically resected early stage disease is 60–80%. This difference in lung cancer survival between those treated with early versus late stage lung disease makes it crucial to detect lung cancer earlier. In particular, in non-developed countries and developing countries, access to expensive therapies for advanced lung cancer is lower than in developed countries and detecting the lung cancer at early stages, when curable by surgery, is still of greatest importance.
- ▶ **Lung cancer awareness:** A number of useful strategies have been tested to help raise public awareness of early signs and symptoms of lung cancer and to encourage people to attend health care providers earlier. These have included such strategies as local free paper and local press campaigns, local radio, leaflets, beer mats, “coughing bus stops”, and outdoor bill boards which have been tested in the UK. The authors evaluated the effectiveness of a mix method campaign on lung diagnosis and found that there was a positive effect on the target groups, with an increase of presentations to GP services and requests for Chest x-rays. In conclusion, there is support for the efficacy of the “push-pull” approach, combining both public and professional interventions to increase service access and earlier diagnosis in a socially deprived community with a high incidence of lung cancer¹. Awareness strategies could potentially be incorporated into developing health care systems.
- ▶ **Tobacco control:** If the global epidemic of lung cancer deaths is to be decreased in the next few decades, smoking cessation must be a key component of our strategy². In order to achieve its goal of eliminating lung cancer the IASLC emphasizes the importance of governmental implementation of the Framework of Convention on Tobacco Control with its full array of well proven tobacco control strategies [<http://iaslc.org/policies/declaration-on-tobacco>]. The example of California is informative of how quickly good tobacco control with its resultant decrease in adult smoking prevalence has led to rapid decreases in lung cancer incidence.
- ▶ **Low dose lung cancer helical screening:** On 29 June 2011, the National Lung Screening Trial (NLST), sponsored by the National Cancer Institute in the United States showed that lung cancer deaths fell by 20% and all-cause mortality fell by 7% when smokers, defined as current or former smokers with 30 or greater pack years of smoking, were screened regularly using low-dose spiral computed tomography (CT) compared with standard chest x-ray. The study followed more than 53,000 current and former smokers aged 55 to 74. It was halted a year early because the reduction in cancer deaths provided an answer to the study's main question³. Thus, low-dose spiral CT is the first test of any type to demonstrate a significant reduction in lung cancer mortality through early detection. This innovation provides a great opportunity for lung cancer clinicians and researchers across the world to work responsibly to provide, study and refine this new approach within future clinical trials and national screening programmes.
Although the NLST is the first randomized clinical trial to show a significant decline in lung cancer deaths, there are a number of European trials currently under way that could provide further data on cost effectiveness and mortality benefit. The IASLC CT screening workshop 2011 recommendations listed six priority areas to be addressed before the implementation of international national screening programmes⁴. Lung cancer screening still has to be shown to be cost effective before implementation into developing health care systems.
- ▶ **Lung cancer staging and interventions:** Lung cancer specialists around the globe use an internationally accepted classification of lung cancer stage based on the TNM system. This is the strongest prognostic tool in lung cancer and assists clinicians in deciding the best treatment for individual patients. IASLC developed its Lung Cancer Staging Committee to facilitate improvements in this staging system. The project collected data on over 100,000 cases of lung cancer from around the globe. The analysis of this data lead to recommendations which formed the basis of the seventh edition of the TNM Classification for Lung Cancer by the Union of International Cancer Control (UICC) and the American Joint Committee on Cancer (AJCC). IASLC remains committed to fund prospective data collection to inform future revisions of this important prognostic tool. *The*

IASLC has published books, posters, data sheets and webinars to inform the lung cancer community of changes in the staging and pathological classification in use around the world(<http://iaslc.org/>)⁵. Lung cancer treatment strategies which are known to be currently effective could be implemented into developing health care systems if adequate training and facilities are provided.

► **Lung cancer pathology:** In order to harmonize the histopathological classification of lung tumours all over the world, IASLC joined the World Health Organization in developing the “WHO/IASLC International Classification of Lung and Pleural Tumors”⁶, and in recognition of the rapid development in molecular pathology (especially for patients with pulmonary adenocarcinomas), and the need for a multidisciplinary approach for management of patients with lung cancer, IASLC recommended later a

new multidisciplinary classification of pulmonary adenocarcinoma⁷ and is currently in the process of making a multidisciplinary classification for non-adenocarcinomas.

► **IASLC contribution to developing health care systems:**

In the first instance IASLC would be in a position to provide advice and input into lung cancer awareness campaigns and tobacco control measures. IASLC has developed web-based CME tools which can improve the performance of clinicians giving smoking cessation advice to patients (<http://iaslc.org/>). The second phase of assistance would be in the areas of lung cancer screening and the differing treatment modalities for lung cancer patients.

However the most powerful reduction in lung cancer deaths will be reached by primary prevention and mainly by smoking cessation as tobacco is the primary cause of lung cancer worldwide. ●

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¹ Athey VL, Suckling RJ, Tod AM, Walters SJ, Rogers TK: Early diagnosis of lung cancer: evaluation of a community-based social marketing intervention. *Thorax* 2012, 67(5):412-417.

² Peto R, Darby S, Deo H, Silcocks P, Whitley E, Doll R: Smoking, smoking cessation, and lung cancer in the UK since 1950: combination of national statistics with two case-control studies. *Bmj* 2000, 321(7257):323-329.

³ Aberle DR, Berg CD, Black WC, Church TR, Fagerstrom RM, Galen B, Gareen IF, Gatsonis C, Goldin J, Gohagan JK et al: The National Lung Screening Trial: overview and study design. *Radiology* 2011, 258(1):243-253.

⁴ Field JK, Smith RA, Aberle DR, Oudkerk M, Baldwin DR, Yankelevitz D, Pedersen JH, Swanson SJ, Travis WD, Wisbuba, Il et al: International Association for the Study of

Lung Cancer Computed Tomography Screening Workshop 2011 Report. *J Thorac Oncol* 2012, 7(1):10-19.

⁵ Goldstraw P: *IASLC Staging Manual in Thoracic Oncology*. 1st ed Florida, USA: EditorialRx Press 2009.

⁶ WHO-IASLC: *Classification of Lung- and Pleural Tumors*. Springer-Verlag, Berlin 1999.

⁷ Travis WD, Brambilla E, Noguchi M, Nicholson AG, Geisinger KR, Yatabe Y, Beer DG, Powell CA, Riey GJ, Van Schil PE et al: International association for the study of lung cancer/american thoracic society/european respiratory society international multidisciplinary classification of lung adenocarcinoma. *J Thorac Oncol* 2011, 6(2):244-285.