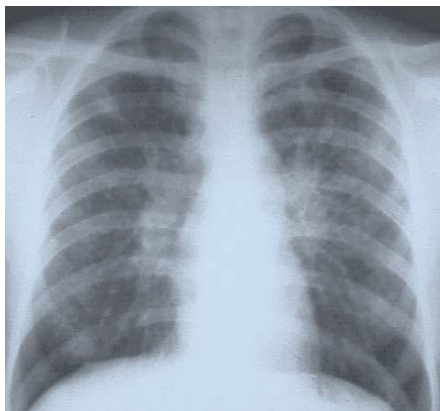


# Advances in the Early Detection of Lung Cancer: Impact on Tobacco Dependence Treatment

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Lung cancer remains the most common cause of cancer death in the United States, even higher than breast cancer among women. Despite advances in treatment protocols, the overall 5-year survival has not increased much in the past few decades, going from 12% in 1974 to 15% in 1997 (1). Despite poor survival in general, five-year survival for resected Stage I lung cancers can be as high as 40-70%. The major problem in the treatment of lung cancer is that only 15% of lung cancers are localized at the time of diagnosis. The majority of these go undetected for many years, and only present with symptoms or are detected on a routine chest x-ray after they have already spread. Up until now, there have been no screening tests to detect lung cancer at an early stage.



The principle of screening relies on several factors related to the disease in question and the testing method. First, the disease must be common, and there must be a clear benefit of early detection. In other words, finding the disease early can lead to improved outcome through earlier treatment. For a disease with no good treatment, there is no benefit to screening. Second, there must be a period of having the disease without manifesting symptoms (asymptomatic phase). It is during this time that a screening test would be used. If a person is already experiencing symptoms, then you are actually *diagnosing* not screening. Third, the screening test should be cost-effective, relatively safe, sensitive and specific (low numbers of false positive and negative results), and able to be

applied to a large population. Finally, the screening test must have a way for confirming the diagnosis. This is often done with a biopsy.

Previous studies, such as the Cooperative Early Lung Cancer Detection Program, and the Mayo Lung Project, looked at methods of screening for lung cancer including the study of sputum (mucus from the lungs) for abnormal cells and the use of periodic chest x-rays. Unfortunately, these testing strategies have not been shown to decrease mortality as screening tools.

More recently, low-dose computerized-topography (CT) scans have been studied as screening tools for early detection of lung cancer. The cost is slightly higher than that for chest x-rays, and the radiation exposure is roughly equal. Trials as part of the Early Lung Cancer Action Project (ELCAP) in Japan and the U.S. have compared low-dose CT scans to chest x-rays. They found that CT was able to detect early stage tumors 6 times more often (2). These promising results have prompted the National Cancer Institute to conduct a 5-year, large-scale randomized clinical trial comparing CT to chest x-ray for lung cancer screening; the Lung Screening Study. Within the next few years we will see if these results show benefit.

An important issue from the tobacco dependence treatment standpoint is how a new screening test for lung cancer will impact on quit motivation. Several studies have been conducted and are underway to look at this issue. On the one hand, a smoker who undergoes screening and is found to have lung nodule may decide to continue smoking, believing there is “no point in quitting now.” On the other hand, such a finding may prompt another smoker to attempt to quit immediately, fearing for his/her health. Conversely, a negative screening test may relieve a smoker’s worries, falsely reassuring him/her that they are healthy and can continue to smoke without consequences. Again, another smoker may take a negative result as a thankful “dodging of a bullet”, and may be motivated to quit while things are good.

This is clearly a complex psychological and behavioral experience. Should lung cancer screening prove beneficial, it may be an opportunity to link this service directly to tobacco dependence treatment. It will be important for clinicians and researchers in tobacco control to examine the findings of these screening studies carefully as they develop. One thing is for certain; the best way to prevent lung cancer is to stop smoking.

## References:

1. Jemal A, Thomas A, Murray T, Thun M; Cancer Statistics, 2002; *Ca: A Cancer Journal for Clinicians*; 2002; 52(1); 23-47.
2. Henschke CI, McCauley DI, Yankelevitz DF, et. al.; Early Lung Cancer Action Project: Overall design and findings from baseline screening; *Lancet*; 1999; 354; 99-105.

## Upcoming Training Opportunities

**September 19-23, 2005:** Ohio State Tobacco Treatment Specialist Training.

**September 29, 2005:** NATIONAL CONFERENCE: Tobacco, Comorbidity and Stigma, Hyatt, New Brunswick. For more information or to register, please visit [www.tobaccoprogram.org](http://www.tobaccoprogram.org)

**October 6-7, and November 17, 2005:** Youth Quit2WIN Training: For more information, please visit [www.tobaccoprogram.org](http://www.tobaccoprogram.org)

**October 17-21, 2005:** 5-Day Certified Tobacco Dependence Treatment Specialist Training. For more information, please visit [www.tobaccoprogram.org](http://www.tobaccoprogram.org)

**December 6 and 7, 2005:** Youth Quit2WIN Training: For more information, please visit [www.tobaccoprogram.org](http://www.tobaccoprogram.org)