

**Project title: Low Dose Computed Tomography Screening Study in Nonsmoker with Risk Factors for Lung Cancer in Taiwan**

**Taiwan Lung Cancer Screening in Never Smoker Trial (TALENT)**

Taiwan Lung Cancer Society

台灣肺癌學會

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Lung cancer is the most lethal malignancy in Taiwan, the five-year survival rate is only about 15%. Early lung cancer is usually asymptomatic; however, most patients are presented with symptoms and 75% are diagnosed at advanced or metastatic disease. Early detection of lung cancer is the most effective way for improving lung cancer survival. Low-dose computed tomography (LDCT) scan is a proven tool for lung cancer screening. The NLST study in the United States confirmed that LDCT scanning for high-risk smokers can effectively reduce lung cancer mortality. However, half of Taiwan's lung cancer patients do not smoke, so the risk model developed in western countries is not suitable for us. In addition, the effectiveness of LDCT for lung cancer screening in non-smokers is not clear. Based on the risk prediction model for non-smoking lung cancer established in our previous study, we conducted a LDCT lung cancer screening project and is expected to enroll 12,000 subjects within four years.

As of 2017/8/30, 1916 LDCT were completed in this stage and totally 7664 cases have been enrolled. Up to date, 223 patients had undergone tissue diagnosis procedures (15 by bronchoscopy or CT guided, 208 by surgery). The final diagnosis included 5 atypical adenomatous hyperplasia, 34 adenocarcinoma in situ (AIS), 36 minimally invasive adenocarcinoma (MIA), 103 invasive lung adenocarcinoma (stage IA in 80, IB in 16, IIA in 2, IIB in 1, IIIA in 1, IV in 2, and unknown in 1), and one stage IIIA squamous cell carcinoma and one limited stage small cell carcinoma. In addition, there were one solitary metastatic ovarian cancer, one lymphoma and 26 benign pulmonary lesions. Meanwhile, three patients underwent surgical resection for benign mediastinal tumors and one underwent embolization for pulmonary arteriovenous malformation. In summary, at present, the lung cancer detection rate was 2.28% (175/7664) (22.8 per thousand population) and 95% were stage I lung adenocarcinoma or less.

In the NLST study, the LDCT lung cancer detection rate in the first stage was 1.03% (10.3 per thousand population). Therefore, our preliminary results showed that, in our pre-defined non-smoking high-risk population, the LDCT lung cancer detection rate was similar to, or even higher than, NLST study. The results suggested that our project is moving toward the right direction and we only need to continue enrollment and refine the definition of the high risk. At the end, our study results will be able to provide valuable information to the health authority. We expect to complete the enrollment by the end of 2019 and will continue the follow-up of the subjects enrolled.