

## **Building a lung CT screening program as a model for research, education and health care**

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**BACKGROUND:** The Brazilian Early Lung Cancer Detection Program (BRELT1), also called “ProPulmão” in its Portuguese acronym, is the first program for lung cancer screening in Brazil, and possibly in South America. The program became active in 2013, with the goal of recruiting individuals at high risk for lung cancer for LDCT screening combined with smoking cessation programs. **METHODS:** A comprehensive plan was established before accrual to specifically define inclusion and exclusion criteria, generate informational material, delineate the primary prevention strategies; as well as identify the structural needs and data control tools. A multidisciplinary approach was discussed with the research staff, in particular to follow positive results and determine criteria for negative results. The inclusion and exclusion criteria were based on the National Lung Cancer Screening Trial (NLST). The management of CT findings was based on the NCCN Guidelines for Lung Cancer Screening and the Fleischner Society. The data collection was based on the IELCAP database. Some analytic tools for quality of life, anxiety and depression and nicotine dependence; previously validated in the Portuguese language were also included. Also, as part of this initial planning, the definition of the work team was established. **RESULTS:** The program was built on different stages with multi professional involvement: **Stage 1: Community Outreach.** Creation of marketing and informational material specifically tailored to the media market (e.g., a corporate website message, radio, television and printed or virtual newspapers) or distribution of informative material to the hospital staff through the institutional website, placement of posters for employees in specific locations and mailed flyers. **Stage 2: Triage.** When a potential participant initially contacts BRELT1 team, a screening interview was conducted over the telephone to review all the inclusion and exclusion criteria. Once the potential participants were deemed eligible, they were invited to complete a full questionnaire for lung cancer risk assessment, quality of life, nicotine dependence and anxiety/depression. Those individuals considered ineligible due to clinical symptoms were advised to seek medical assistance at health care centers near their homes. **Stage 3: Multidisciplinary approach.** This was a key part of the program’s model. The multidisciplinary team is consisted of radiologists, thoracic surgeons, pulmonologists, and interventional radiologists. Following the radiology assessment, all positive findings were discussed by the multidisciplinary team in a formal conference to define the optimal workup strategy. Minimally invasive techniques such as CT guided transthoracic needle biopsy; bronchoscopy and video assisted thoracic surgery (VATS) were preferred options. **CONCLUSIONS:** A comprehensive program on lung CT screening is a good model to provide medical education and research on novel approaches to face the burden of lung cancer. Health care professionals should be involved on the cost effectiveness analysis to define the role of screening in Brazil.