Prevalence of Lung Cancer Screening in High-Risk Smokers

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Abstract:

Lung cancer is the leading cause of cancer-related deaths in the United States regardless of gender or ethnicity. Most people are diagnosed at an advanced stage; individuals with Stage III and IV lung cancer have five-year relative survival rates of 5% and 1%, respectively. Cigarette smoking has been linked to 90% of all lung cancers in the United States and is the number one risk factor. Therefore, long-term smokers are at the greatest risk for lung cancer. Lung cancer screening (LCS) with low-dose computed tomography (LDCT) has been shown to decrease associated mortality by 20% relative to chest radiography among long-term smokers. Multiple organizations have recently published LCS guidelines recommending annual LDCT for long-term smokers. In December 2013, the United States Preventive Services Task Force issued a Grade B recommendation for LCS with LDCT for long-term smokers and the Centers for Medicare & Medicaid Services recently approved coverage of LCS for high-risk individuals that includes a LCS counseling and shared decision-making visit. As LCS programs are implemented, it is critical that we understand the number of eligible high-risk individuals and the prevalence and predictors of lung cancer screening. LCS participation is likely to be influenced by multiple variables related to the individual, provider, and healthcare system. Screening guidelines with LDCT are new and efforts to increase awareness among appropriate stakeholders are currently underway and LCS programs are being implemented. Health Belief Model (HBM) constructs have predicted participation in screening for other cancers and are likely to predict LCS participation. Linking HBM constructs with the stage theory, Precaution Adoption Process Model (PAPM), offers a more complete understanding of screening behavior in the context of lung cancer. In the absence of such knowledge, development of effective interventions to enhance shared decision-making between long-term smokers and their healthcare providers will be hindered. By linking the expanded HBM with the PAPM, we propose that LCS participation is a behavior that is influenced by individual, social/environmental, and healthcare system level variables. Individual-level variables include important and modifiable HBM constructs that directly influence stage of adoption for LCS participation.

The purpose of this project is to establish preliminary prevalence data for LCS eligibility compared to current screening practices in an integrated healthcare system and identify factors associated with LCS in high-risk smokers. The long-term goal of this project is to develop and test interventions to enhance shared decision-making between high-risk current and former smokers and their healthcare provider about LCS.

The specific aims of this project are: 1) Identify the proportion of Kaiser Permanente Southern California (KPSC) members who: a) are eligible for lung cancer screening; b) have ever had a low-dose computed tomography (LDCT) to screen for lung cancer; c) have had a screening LDCT in the past 15 months; and d) have never been screened using a newly developed CRN Lung Screening Registry at KPSC; 2) Compare screening-eligible KPSC members who have and have not been screened on participant characteristics (age, gender, race/ethnicity, education, income, insurance status, smoking history, current smoking status, family history of lung cancer), environmental variables (social influence, media exposure), lung cancer screening health beliefs (perceived risk of lung cancer and perceived benefits of, perceived barriers to, and self-efficacy for lung cancer screening, perceived lung cancer stigma), knowledge, and healthcare provider recommendation; and 3) Describe the proportions of long-term smokers in KPSC who are in each stage of adoption according to the Precaution Adoption Process Model (unaware, unengaged, undecided, decided not to act, decided to act, initiation, maintenance) for lung cancer screening.