Lung Cancer Screening

Implementation of and barriers to a nurse practitioner–led program

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Lung cancer accounts for more American deaths annually than any other cancer, and the survival rate is low among those diagnosed with advanced-stage disease. Screening with low-dose computed tomography (CT) can help to reduce mortality. CT screening for lung cancer should be performed in the context of a comprehensive screening program, rather than as a single isolated test. The addition of the nurse practitioner role is instrumental in creating a lung cancer screening program that may increase patient satisfaction and that meets regulatory criteria.

AT A GLANCE

- Lung cancer screening with low-dose CT has been shown to help reduce lung cancer mortality rates.
- A nurse practitioner is well equipped to evaluate patients, engage in shared decision making, offer smoking cessation guidance, and counsel patients regarding lung nodules within a lung cancer screening program.
- With the right stakeholders and interprofessional collaboration, development and implementation of a lung cancer screening program can be successfully realized.

KEYWORDS
lung cancer screening; cancer screening programs; early detection; nurse practitioner

DIGITAL OBJECT IDENTIFIER
10.1188/18.CJON.601-605

An estimated 234,030 individuals will be diagnosed with lung cancer in 2018, and a predicted 154,050 will die from the disease that same year (Siegel, Miller, & Jemal, 2018). Lung cancer is rarely identified in its early stages. For example, at initial diagnosis of lung cancer, 57% of patients have distant disease, whereas only 16% have localized disease (Siegel et al., 2018). Presenting symptoms of lung cancer do not appear until there is a large disease burden or the cancer metastasizes, making early diagnosis more difficult. Across all stages and histologies, the five-year relative survival rate of lung cancer is 18%, which is the lowest among all cancers (American Cancer Society, 2017). In addition, the five-year survival rate across stages varies significantly, ranging from less than 1% for stage IVB non-small cell lung cancer to 92% for stage IA non-small cell lung cancer (American Cancer Society, 2017). Screening for lung cancer and early detection can improve outcomes, but only 4% of an eligible 6.8 million Americans are being screened for the disease (Siegel et al., 2018). A need exists for lung cancer screening programs to effect change.

Prior to 2015, no consensus recommendations for lung cancer screening existed because prior research demonstrated a lack of sensitivity or specificity for chest x-ray and sputum cytology for lung cancer diagnosis (Moyer, 2014). The National Lung Screening Trial (NLST), which was undertaken from 2002–2004, enrolled 53,454 individuals with the aim of identifying whether computed tomography (CT) screening for lung cancer affected lung cancer mortality rates (Aberle et al., 2011). To be eligible for participation, individuals had to have at least a 30 pack-year smoking history or be former 30 pack-year smokers who had quit fewer than 15 years prior, be aged 55–74 years, and be asymptomatic (without hemoptysis or without significant weight loss of greater than 15 pounds within the previous year) (Aberle et al., 2011). Being asymptomatic was a particularly important criterion for participants, because a low-dose CT scan is meant for screening purposes, unlike a diagnostic full-dose CT scan. Participants were randomized to chest x-ray versus low-dose CT scan of the chest, and they underwent annual imaging for two years. Low-dose CT provided earlier detection of pulmonary nodules and cancer detection at an earlier stage compared to chest x-ray, resulting in a 20% reduction in lung cancer mortality and a 7% reduction in all-cause mortality (Aberle et al., 2011).

Based on NLST findings, the U.S. Preventive Services Task Force (USPSTF) recommends annual lung cancer screening with low-dose chest CT scan for adults aged 55–80 years with at least a 30 pack-year smoking history who either currently smoke or have quit within the past 15 years (Moyer, 2014). This recommendation is given a grade of B by the USPSTF, because there is high certainty that the net benefit is moderate, weighed