ORIGINAL ARTICLE

Perceptions and Utilization of Lung Cancer Screening Among Primary Care Physicians

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ABSTRACT

Introduction: Lung cancer screening (LCS) with low-dose computed tomography (LDCT) is effective at reducing lung cancer mortality in high-risk current and former smokers. Despite the fact that screening is recommended by the U.S. Preventative Services Task Force (USPSTF), few eligible patients are screened. We set out to study the barriers to LCS by surveying primary care physicians (PCPs).

Methods: We surveyed a randomly selected sample of 1384 eligible PCPs between January and October 2015, using the American Medical Association Physician Masterfile, though surveys sent by mail, fax, and e-mail. The survey included questions regarding knowledge of LCS guidelines, utilization of LCS over the prior 12 months, and perceptions of barriers to LCS. Training background, years in practice, practice type, and demographics were also collected.

Results: The survey response rate was 18%. Responders and nonresponders did not differ by practice or demographic characteristics. Of the respondents, 47% indicated that LCS was recommended by the USPSTF, 52% had referred at least one patient for LDCT, and 12% had referred at least one patient to a LCS program over the prior 12 months. Perceived barriers to LCS included uncertainty regarding ther benefit of LCS, concern regarding insurance coverage, and the harm of LCS.

Conclusions: Although LCS is recommended by the USPSTF, LDCT is utilized in a minority of eligible patients, as reported by surveyed PCPs. Approximately half of PCPs are familiar with USPSTF recommendations for LCS and a number of physician barriers to adherence to guidelines exist. Additional study of physician- and system-based interventions to improve adherence to LCS recommendations is needed.

Keywords: Lung cancer screening; Computed tomography; NSCLC; Primary care; Survey

Close to 30% of all cancer deaths are due to lung cancer.[1] Lung cancer screening (LCS) with low-dose computed tomography (LDCT) in high-risk current and former smokers reduces lung cancer–related mortality.[2,3] The National Comprehensive Cancer Network and U.S. Preventive Services Task Force (USPSTF) guidelines recommend LCS in high-risk patients.[4,5] The USPSTF recommends screening current and former smokers aged 55 to 80 years who have smoked for 30 or more pack-years and who quit within 15 years if a former smoker. LCS is a mandated benefit for non-Medicare plans under the Affordable Care Act and is approved by the Centers for Medicare Services (CMS) for Medicare beneficiaries.[6,7] In addition, LCS with LDCT is recommended by a number of other professional societies, including the American Cancer Society, American Thoracic Society, and the American College of Chest Physicians. The American Academy of Family Practitioners does not currently recommend LCS with LDCT.

Although no data exist specifically on the proportion of high-risk people who undergo LCS, Pinsky et al. estimated, using National Lung Screening Trial (NLST)

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criteria, that 6.2% of adults older than 40 years would be eligible for screening.[8] There currently are no data on the number of LDCT screenings for lung cancer that have been done since CMS approval, but anecdotally the overall number is low. Identifying barriers to adherence to LCS guidelines is important to successfully implement this important public health intervention.

Barriers to health care can be organized into patient, physician, and health care systems factors. There are scant data on barriers to LCS, in contrast to other cancer screening studies such as mammography.[9,10] One small survey of patients undergoing LCS reported that cost, fatalism regarding lung cancer, and fears of radiation were important patient concerns regarding LCS.[11] Another recent qualitative survey study of smokers reported that knowledge of the existence of LCS was low and that patient barriers to screening included inconvenience, the stigma associated with smoking as a reason to avoid screening, and distrust of the health care system.[12] Even less is known about physician barriers to LCS. Possible physician barriers to LCS include a lack of awareness regarding guidelines for LCS, lack of time to counsel patients regarding LCS, or misperceptions regarding the risks and benefits of LCS. Hoffman et al. performed interviews with a small number of PCPs and reported lack of awareness of LCS guidelines and skepticism regarding the benefits and harm of LCS.[13] Primary care physicians (PCPs) are the stewards of preventative health care, including LCS. It is important to estimate how frequently PCPs are referring patients for LDCT, as well as the perceptions of PCPs on guidelines for, relative benefits of, and barriers to LCS. Finally, possible system barriers include a lack of standardized methods for identifying patients eligible for LCS and availability of centers offering LDCT.

The aim of this study was to understand the utilization and perceptions of LCS among PCPs so as to identify barriers to adoption of LCS guidelines. Specifically, this study intended to identify PCP perceptions of the benefits and harm of LCS with LDCT, knowledge of existing guidelines, referral for LCS with LDCT over the past 12 months, and system barriers to LCS in their practice. Information gained from these data can be used to formulate health policy and educational efforts to improve referral for LCS by PCPs in our region and nationwide. The study hypothesis was that patient-, physician-, and heath system–related barriers to LCS limit PCP compliance with the USPSTF guidelines. Identifying and addressing these barriers will produce a substantial increase in compliance.

Methods

Survey Methods and Study Cohort

A randomly selected sample of 1840 PCPs was identified using the American Medical Association's Physician Masterfile as the sampling frame. Eligible respondents were family physicians, general internists, and general practitioners younger than 75 years who were actively practicing in Los Angeles County and who had complete demographic and contact information available.

Figure 1 presents a flowchart of the survey methodology and sampling for this study. Of the 1840 PCPs randomly selected, 456 were excluded from the study for one of the following reasons: (1) we were unable to successfully mail the introductory letter and questionnaire to the physician; (2) the physician lacked valid current contact information; or (3) the physician was located outside Los Angeles County, unlicensed, sanctioned, retired, or deceased. This resulted in a sample of 1384 eligible PCPs who were surveyed between January 2015 and October 2015.

All eligible PCPs first received an introductory letter inviting them to participate in the survey study. They then received up to two hard-copy mailings of a questionnaire on LCS (designed using HP TeleForm [Hewlett-Packard, Palo Alto, CA]) by standard mail. PCPs were sent the survey by fax or e-mail if fax numbers or e-mail were available. The e-mail contained a link to the same questionnaire in an online format (designed using the Datstat data collection platform [Datstat, Seattle, WA]). Physicians had the choice of completing the survey on paper (submitted through mail or fax) or electronically (submitted online). To encourage survey participation, all PCPs received up to two follow-up phone calls approximately 15 days after the hard-copy questionnaires were mailed. Reminders were sent via either mail or fax to any PCP who had not completed the questionnaire after 2 months. After completion of the study, 20 of the respondents were randomly selected to receive a prize valued at approximately $450 (an Apple iPad or compact refrigerator).

This study was reviewed and approved by the City of Hope Institutional Review Board (COH IRB no. 14228). Surveys included an information sheet on the study and an experimental subject's bill of rights.

Questionnaire Items and Measures

The PCP survey was designed in part on the basis of a prior survey of LCS conducted by Klabunde et al.[14] The survey contains 54 questions organized into four sections. The first section assessed how effective LDCT, chest radiography (CXR), and cytologic examination of sputum are in reducing lung cancer mortality in high-risk current and former smokers, as well as in never-smokers. It also asked what kind of screening should be used for several different hypothetical patients of different ages and with different histories of tobacco exposure. The next section of the survey assessed how frequently the PCP utilized CXR or LDCT for LCS over the