

New Project to Increase Lung Cancer Screening Adherence

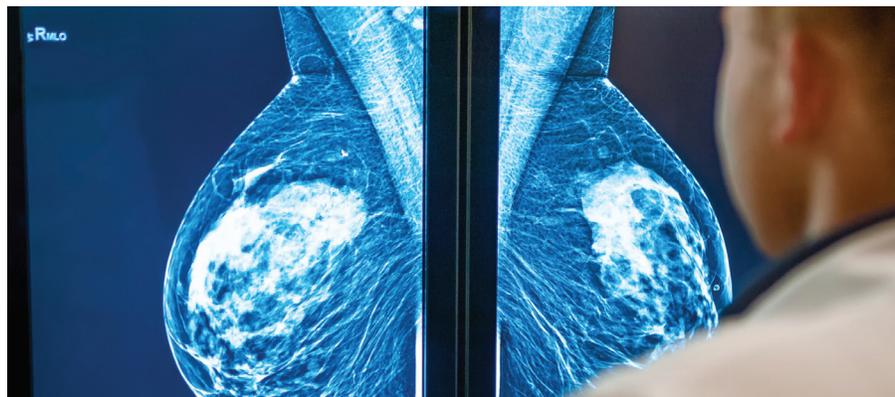


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Despite the fact that both breast cancer screening with mammography and lung cancer screening with low dose computed tomography (LDCT) scanning can lead to early cancer detection and significant reductions in mortality — ranging from 20 to 40 percent in those who meet screening criteria — mammography is well utilized by patients (76 to 81 percent), while adherence to lung cancer screening guidelines is woefully low (5 to 12 percent).



Several factors contribute to this, including smoking stigma, lack of familiarity with recommendations and the complexity of qualification criteria. African American/Black current and former smokers derive the greatest mortality benefits from regular LDCT screening for lung cancer, yet underserved populations generally receive fewer medical screening services and suffer worse outcomes from cancer and other diseases.

Employing education and networking to improve compliance

A group of UCLA radiologists and informaticists — led by Ashley Prosper, MD, Hannah Milch, MD, William Hsu, PhD, and Cheryce Fischer, MD — have been granted \$2.7 million over three years to carry out research aimed at increasing guidelines-based utilization of LDCT lung cancer screening. The team intends to leverage the high adherence to breast cancer screening guidelines to improve adherence to lung cancer screening guidelines. The new study — the Mammosphere Project — will recruit women who receive regular mammograms and assess their eligibility for lung cancer screening and other image-based screening services. In addition, women recruited to participate in the study will be provided with tools to serve as health advocates for people around them (including family and friends) who are less likely to participate in screening due to fear, stigma, lack of knowledge and other factors. The researchers hypothesize that eligible women undergoing breast cancer screening will be more likely to participate in lung cancer screening and can utilize their influence over family and friends in their social networks to increase overall screening adherence in their communities.

Recognizing the significance of psychological barriers to cancer screening, the team aims to measure participants' levels of fear, fatalism and concern for future consequences, tracking their changes over time. The project will uniquely track referrals by women within their social networks and provide educational materials via a patient portal and a patient navigator who can connect patients with available screening resources. To improve convenience, efforts will be made to schedule multiple screening imaging exams at one time. The research will provide a patient-centered, personalized report of cancer risk at the completion of the initial visit based on personal and family history using current risk models to inform screening recommendations.

The researchers will track differential health outcomes and adherence to screening between the study group and a non-participant age-matched control group after three years; the effectiveness of the referral/influence model; and changes in levels of anxiety, fear, stigma and other psychological factors that may be associated with reduced screening adherence.

Hannah Milch, MD, assistant clinical professor of radiology at UCLA, already completed a pilot study in which over 800 women seen for breast cancer screening at UCLA were surveyed to determine their eligibility for lung cancer screening, their awareness of lung cancer screening and their adherence to lung cancer screening guidelines. As reported in our Autumn 2020 newsletter, she found that the majority (63 percent) of the women eligible for lung cancer screening had never heard of lung cancer screening with LDCT. “There is an opportunity here to inform and offer lung cancer screening services to these eligible women who



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have already shown an interest in cancer screening by receiving routine mammograms. These women may also be in position to influence family and friends who may also be eligible for screening,” explains Dr. Milch.

Lung cancer screening and health disparities

Dr. Milch is collaborating in the new research with Ashley Prosper, MD, assistant professor of radiology at UCLA, to build on the earlier survey and attempt to increase awareness of lung cancer screening with LDCT and adherence to screening guidelines, especially in historically underserved populations. One way the study aims to reach patients from across a range of socioeconomic and cultural backgrounds will be to recruit women receiving screening mammograms through local safety net primary care clinics.

The grant includes funding for screening exams and blood work required for risk assessment. Recognizing potential transportation barriers to screening adherence, the study will work to provide transportation to participants in need.

In a subanalysis of National Lung Screening Trial (NLST) data by race, African Americans reported higher rates of characteristics associated with poorer lung cancer outcomes, including being current smokers (though with lower overall cigarette consumption) and having higher rates of comorbidities. In spite of this, African Americans undergoing lung cancer screening with LDCT experienced the greatest reduction in lung cancer mortality of any racial or ethnic group, in addition to a greater reduction in all-cause mortality than white participants. Yet in reports from clinical screening programs, African Americans who meet the eligibility criteria for lung cancer screening are less likely to receive lung cancer screening and to have longer times to follow-up than white patients. In addition, studies showed the USPSTF’s original lung screening criteria to be insufficiently inclusive, with African American/Black smokers developing lung cancer at younger ages and with smoking histories below the original 30 pack-year cutoff.

“I am greatly encouraged by the revised USPSTF lung screening criteria released earlier this month. By decreasing the required age to 50 and lowering the smoking history to 20 pack-years, we anticipate the number of individuals eligible for lung screening with low dose CT to double, with a notable increase in eligibility for African American/Black smokers who have been shown to develop lung cancer before reaching eligibility under the old guidelines,” says Dr. Prosper. “The timing of this project — receiving funding to improve screening services at a time when lung screening eligibility is expanding — is ideal.”

The effect of the COVID-19 pandemic

Patients eligible for lung cancer screening have smoking histories and comorbidities that put them at increased risk of infection and of severe complications of COVID-19. In late April of 2020, the Radiological Society of North America COVID-19 Task Force suggested postponing nonurgent outpatient imaging, including lung cancer screening.

One study from the University of Cincinnati found that after screenings at their hospital resumed, the percentage of patients with lung nodules suspicious for malignancy had increased significantly (from 8 percent to 29 percent), and referrals for intervention by thoracic surgery or interventional pulmonology among tumor board patients had also notably increased (from 21.2 percent to 44 percent).

Of particular concern is the role that COVID-19 could play in exacerbating existing inequities in lung cancer screening. “It is entirely possible that the COVID-19 pandemic could make disparities in screening worse, given underserved communities have clearly been hit harder in many ways by this pandemic. Proactive strategies are needed to address the possible worsening of health care disparities in cancer screening,” explains Dr. Milch.

The disruption of lung cancer screening caused by COVID-19 may further hamper efforts to improve compliance with screening guidelines as health advocates struggle to increase utilization of a screening exam that is underrecognized by those whom it could benefit most.

Image-based screening

Image-based screening plays an increasingly important role in preventive care and early detection medicine, having grown immensely over the past 50 years; it is the recommended screening for many major diseases, including both breast and lung cancer. NLST provided the first evidence of a significant lung cancer mortality benefit from LDCT in older moderate smokers. Beyond lung cancer early detection, LDCT provides a critical window into disease detection and risk stratification for cardiovascular and pulmonary diseases.

Funds for the new study come from a \$200 million settlement paid by Wyeth Inc. to resolve claims that it misled women about the cancer risks associated with its hormone replacement therapy products. UCLA is one of six institutions in California to share in settlement money donated to medical research after the plaintiff group and lawyers had claimed their shares. 