



Ⓜ Lessons Learned to Promote Lung Cancer Screening and Preempt Worsening Lung Cancer Disparities

After the results of the NLST (National Lung Screening Trial) (1) and the U.S. Preventive Services Task Force grade B recommendation for lung cancer screening with annual low-dose computed tomography (LDCT) (2), healthcare systems began implementing lung cancer screening. Despite evidence for a reduction in lung cancer mortality associated with lung cancer screening (1), uptake of lung cancer screening has remained low, especially among underserved populations (3). Given that lung cancer disproportionately affects populations that struggle with poverty, lower levels of education, and reduced access to care (4), it is important to develop effective interventions to increase lung cancer screening in these underserved, hard-to-reach populations.

In this issue of the *Journal*, Quaife and colleagues (pp. 965–975) presented the results of a randomized trial aimed at increasing lung cancer screening uptake (5). In both arms of the trial, participants received brief letters from their primary care provider with a prescheduled time for a screening LDCT and an informational flyer. The difference was in the flyer received: the control arm received a traditional text-based flyer (six pages) containing detailed information about lung cancer screening, and the intervention arm included a two-page flyer with less-dense information and more images, hypothesized to be more patient friendly. In both arms, participants had the opportunity to ask questions and discuss lung cancer screening in person with a clinician on the day of the scheduled LDCT appointment. The authors hypothesized that the stepped approach to information provision represented by the intervention arm would increase screening uptake compared with the control arm.

Although the trial results showed no difference in lung cancer screening uptake between the two study arms, this study had several strengths that merit consideration. First of all, this study should be commended for its focus on a high-risk and understudied population; 61% of the study population met deprivation index criteria for being in the most deprived quintile, another 35% were in the second most deprived quintile, and 75% were current smokers. Thus, the study population targeted those who are at high risk for lung cancer mortality but who were medically underserved far more effectively than the NLST. In order for lung cancer screening to

close, and not widen, health disparities in lung cancer mortality, it must reach populations similar to the ones included in this trial. Second, the approach used in both arms of this study, which consisted of a series of patient mailings, was low burden to patients and the healthcare system. This is an important consideration, because resource-intensive, complex interventions may be difficult to sustain after study completion (6). Finally, the study's randomized design controlled for potential confounding, allowing for evaluation of the intervention between comparable groups.

Despite these strengths, there are also potential concerns about the intervention selected for this study. First, there is conflicting evidence regarding its potential for success in this type of healthcare setting and with underserved populations. Although some studies suggest that carefully designed, tailored leaflets can positively affect cancer screening knowledge, attitudes, and informed decision making (7, 8), other studies have failed to show improved cancer screening uptake with leaflets (9, 10). Second, the design of the leaflet in the Quaife and colleagues study may thwart true shared decision making (5). This concern is particularly important, because shared decision making for lung cancer screening is recommended by guidelines and required for reimbursement by the Centers for Medicare and Medicaid Services. The intervention leaflet only mentions potential benefits of lung cancer screening, with no mention of potential harms. Although there is an opportunity for a fuller discussion of benefits and harms when the individual presents for their LDCT appointment, this opportunity may come too late. Once people have already taken the time to arrange their schedule and transportation to come in person for their LDCT appointment, they have likely already made up their mind to proceed, even if they learn new information about potential harms that might have otherwise led them to decline screening.

Regardless of the merits or deficiencies of the intervention leaflet, this trial reported an impressive rate of lung cancer screening uptake. Although multiple observational studies show rates of lung cancer screening hovering at <10% of eligible individuals in the U.S. population (3, 11), the study by Quaife and colleagues achieved screening rates of >50% (5). Although some of this difference may be attributed to all participants in the Quaife and colleagues study having established primary care providers (which is not the case for population-based studies), the proactive approach of mailing eligible individuals letters with scheduled appointments for LDCT examinations and informational flyers may also have been effective at increasing uptake among this socioeconomically deprived population (5).

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Future research to improve lung cancer screening uptake and decision making should capitalize on lessons learned from the Quaife and colleagues study and from other cancer screening contexts (5). Prior healthcare systems research and theory suggest that multilevel cancer screening interventions are associated with the largest improvements in cancer screening outcomes (12). Future approaches could, for example, pair the approach used by Quaife and colleagues (5) of proactively sending letters with LDCT appointment times and informational flyers to eligible individuals with other strategies shown to increase uptake of screening in underserved communities, such as the use of nurse navigators (13). Communication materials sent to underserved populations should be tailored to take into account reading level, medical fluency, language preference, and cultural beliefs and considerations. For example, studies of underserved Appalachian smokers highlight the importance of tailored messages to raise hope rather than invoke stigma in lung cancer screening materials (14). Finding the optimal balance of information on benefits and harms of lung cancer screening to support shared decision making without overwhelming patients from disadvantaged backgrounds remains challenging, but lessons can be learned from prior breast and prostate cancer screening studies (7, 15). Thus, by using historical lessons learned from cancer screening in other organ sites, healthcare systems can develop and test lung cancer screening interventions to ensure that lung cancer screening is implemented in a way that addresses, rather than exacerbates, disparities in lung cancer mortality. ■

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Andrea N. Burnett-Hartman, Ph.D.
Institute for Health Research
Kaiser Permanente Colorado
Aurora, Colorado

Renda Soylemez Wiener, M.D., M.P.H.
Center for Healthcare Organization and Implementation Research
Edith Nourse Rogers Memorial VA Hospital
Bedford, Massachusetts
and
The Pulmonary Center
Boston University School of Medicine
Boston, Massachusetts

ORCID ID: 0000-0001-7712-2135 (R.S.W.).

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