

Lung cancer screening with low-dose CT could be cost effective

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Dartmouth researchers say lung cancer screening in the National Lung Screening Trial (NLST) meets a commonly accepted standard for cost effectiveness as reported in the Nov. 6 issue of the *New England Journal of Medicine*. This relatively new screening test uses annual low-dose CT scans to spot lung tumors early in individuals facing the highest risks of lung cancer due to age and smoking history.

"The takeaway from this study is that there is potential for [lung cancer](#) screening to be done in a cost-effective manner, particularly for adults 65-75 years of age," said William C. Black, MD, chair of the Lung Cancer Screening Group at Dartmouth-Hitchcock Medical Center and professor of Radiology, of Community & Family Medicine, and of The Dartmouth Institute for Health Policy and Clinical Practice, Geisel School of Medicine at Dartmouth. Black is principal author of the paper (read the full paper here) and a leading national researcher of lung cancer screening.

The Dartmouth study found that screening costs \$81,000 for each quality-adjusted year of life it produces. The statistic, known as Cost per Quality-Adjusted-Life-Years (QALYs), considers the overall costs of a medical intervention to a selected population to produce one year of perfect health. For policy makers, this ratio establishes relative worth from an economic perspective. A proposed benchmark for [cost-effectiveness](#) is \$100,000-\$150,000 QALY.

"I think the vast majority of health economists would consider the

threshold to be close to \$100,000 per QALY," said Black.

When the researchers looked at specific subgroups of study participants, they found lung cancer screening was most cost-effective for current smokers, women, and for people in their sixties.

"Although precision with subsets is not as good as overall, people at higher risk seemed to benefit more from screening, so, for example, current smokers benefited much more than people who had quit," said Black.

Lung cancer screening is not yet standard medical practice. Over the last two years, multiple professional associations have issued statements that recommend physicians offer annual lung cancer screening to individuals 55-80 years old who have more than a 30-pack years history of smoking.

As a result of a positive recommendation (Grade B) handed down by the U.S. Preventive Services Task Force in December, 2013, commercial insurers will be required to cover the test as a preventive service with no co-pays or deductibles. The Centers for Medicare and Medicaid Services (CMS), however, has yet to issue its final decision on reimbursement. A preliminary panel recommended against coverage by CMS this past spring. The final report from CMS is expected in the next week.

In this study Dartmouth researchers evaluated more than 53,000 participants in the seven-year NLST. This randomized control study was the one credited for proving that low-dose CT screening for lung cancer can save lives. For each 1,000 people screened there were about three fewer deaths from lung cancer. NLST followed strict protocols and the results of this study do not necessarily apply to lung cancer screening programs implemented differently.

Lung [cancer screening](#) is not without risks. In the NLST, roughly one-

third of those screened had a "false alarm" requiring further testing, usually a repeat of the CT scan, to rule out lung cancer. Some additional tests are invasive and come with a small risk of serious complications.

Since the NLST was conducted, the American College of Radiology (ACR) narrowed its definitions of a "positive" [lung cancer screening](#) test. This stricter guideline should substantively decrease the number of false alarms resulting from the test.

"The new ACR LungRADs reporting system should reduce the false positive rate by about 50 percent," said Black, "and reduce the cost-effectiveness ratio by several thousand dollars per QALY gained."

More information: *New England Journal of Medicine*,
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