

roughly 40% of the time we are left with a nondiagnostic test and have to go back to square 1. If surgery is ultimately deemed necessary, 80% will find lung cancer, even if based on clinical characteristics and without biopsy. When surgery is required, minimally invasive techniques are now the accepted standard, whereas such techniques were used a minority of the time in the NLST. Most importantly, if cancer is discovered, 60% of the time it is an earlier, curable stage, a dramatic change from 39% in unscreened populations.<sup>3</sup>

Our challenge remains to disseminate this information and educate patients and practitioners regarding the significant value of LCS. Success could mean prevention of 52%

of lung cancer deaths.<sup>2</sup> Clearly we must succeed. Maybe then, we will need more surgeons.

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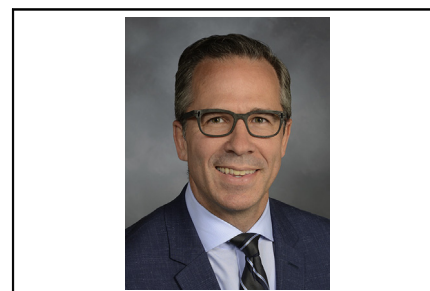
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## Commentary: Overcoming the dangerous narrative of computed tomography screening for lung cancer

Brendon M. Stiles, MD

Einstein once said, “The world is not dangerous because of those who do harm but because of those who look at it without doing anything.” Low dose computed tomography for lung cancer screening (LCS) should be considered in the context of this statement. Despite the National Lung Screening Trial (NLST) and Dutch-Belgian Lung Cancer Screening trial, which clearly demonstrate a reduction in lung cancer mortality, LCS rates of eligible patients fall well below those of



Brendon M. Stiles, MD

### CENTRAL MESSAGE

Too many people overestimate the perceived harms of computed tomography screening for lung cancer. Detected nodules can be safely managed with exceedingly low rates of major complications.

other common cancers such as breast, colon, cervical, and prostate cancer. Arguably, the benefits of LCS established by the large, modern NLST and Dutch-Belgian Lung Cancer Screening trials are superior to historical screening data for these other cancers for which screening is more broadly applied. However, LCS had the misfortune of coming of age during a time in which a skepticism of cancer screening was on the rise in general. Additionally, there has been a tremendous focus on the harms of LCS, both in the medical literature and in the popular press. But to just cite the generic term *harms* and *major complications* as a reason not to

From the Department of Cardiothoracic Surgery, Weill Cornell Medicine, New York-Presbyterian Hospital, New York, NY.

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Address for reprints: Brendon M. Stiles, MD, Department of Cardiothoracic Surgery, Weill Cornell Medicine, New York-Presbyterian Hospital, 525 E 68th St, M404, New York, NY 10065 (E-mail: [Brs9035@med.cornell.edu](mailto:Brs9035@med.cornell.edu)).

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screen, without an in-depth description and understanding of those perceived complications, is itself intellectually lazy and dangerous.<sup>1</sup> Is a complication that arises during the surgical treatment of lung cancer a harm of screening or rather a consequence of the necessary cancer treatment? Is a small nodule, for which only routine follow up is required, a harm and a false positive? How often does an invasive procedure really lead to harm?

The article by Ho and colleagues<sup>2</sup> from the outstanding LCS program at the Lahey Hospital and Medical Center goes a long way toward answering those questions. The authors carefully reviewed 3280 patients screened for lung cancer, among whom 345 were found to have Lung CT Screening Reporting and Data System category 4 suspicious findings that triggered further workup. Among the Lahey cohort, surgical resection for benign disease occurred in 0.43% of screened patients. We can quibble whether this number is too high. The practice of our group is generally to obtain a preoperative biopsy before taking patients with lung nodules to the operating room, as opposed to the experience presented here where just 18.1% of patients had a tissue diagnosis before surgical resection. The Lahey group unfortunately had a fairly high rate of nondiagnostic preoperative biopsies. Nevertheless, as the authors point out, a surgical diagnosis of benign disease is not always unnecessary surgery and may inform treatment and provide relief to patients, particularly for category 4 lesions. More importantly, for screen detected nodules, 90% of surgery at Lahey was accomplished minimally invasively with 48% of patients undergoing sublobar resection. Such surgical approaches should be strongly considered for screen detected small nodules and lung cancers and are associated

with decreased complications in patients undergoing surgery in the NLST, in which there were much higher rates of thoracotomy and lobectomy.<sup>3</sup> That type of surgical practice lends itself well to the most important contribution of this article: the careful follow-up and description of low complication rates due to diagnostic procedures, including surgery, in screened patients. Of their entire screened population, the rate of invasive diagnostic procedures for patients found to have benign disease was just 0.95%. Mortality from those procedures was 0 and major complications were exceedingly rare, even in patients with benign disease undergoing surgical resection. The careful, proscribed approach to diagnostic workup of suspicious findings and the exceedingly low rate of major complications in general with LCS are the key points to emphasize. Many centers are already screening for lung cancer better and more safely than the popular narrative that emphasizes harm. Surgeons need to not only know the true harms in their own screening programs, but need to do everything they can to put protocols and procedures in place to minimize those harms. LCS itself is not dangerous. But we need to look at it closely and continue to do everything we can to make it better.

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