

Special Issue on

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Editorial

Lung Cancer Screening

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EDITORIAL

Ever since the announcement of the finding of a reduced mortality from lung cancer in those screened low dose CT [1], strong and sometimes diverging opinions have been expressed by a variety of interested stakeholders. Patient advocacy groups hail this is a major step forward and has pushed for widespread adoption of lung cancer screening. Primary care organizations greeted the news with responses that varied from cautious optimism to outright skepticism. Third party payers hinted at some degree of horror at the potential for increased costs. Lung cancer clinicians, who have long wished for major advances in the field, saw this as a significant, incremental step in the fight against lung cancer. Health services researchers, while acknowledging that a segment of the population can benefit from lung cancer screening, have also issued warnings of caution and potential dire consequences if screening is done incorrectly. We could emulate reality television; line people up on opposite sides of the debate, watch them hurl insults, and point fingers, but the truth is that every one of these stakeholders has some valid points to make. It's in this context that I write this editorial, hoping to synthesize some of the diverse opinions, and bring some order to the ongoing discourse about lung cancer screening.

For the patient advocates, my message is "Yes, this is a major advance", but perhaps not in the way they anticipate. Unfortunately, in lung cancer, the most vocal patient advocates are also those who might stand to gain the least in the setting

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of a properly executed lung cancer screening program. Stigma has driven many lung cancer patients and their would-be advocates underground, in distinct contrast to the breast-cancer community, where a diagnosis of breast cancer is often a call to arms. The most vocal advocates for lung cancer are often those for whom a diagnosis occurred in the absence of a cigarette exposure history themselves, or their loved ones. Sadly, this need to project a distinction between those who do and those who don't "deserve" lung cancer has been perpetuated by society and (to a lesser degree) our profession. We as a society have neglected lung cancer, largely because of the stigma attached to smoking. "Collateral damage" from very effective public health campaigns to get people to stop smoking has disproportionately affected those with lung cancer, relative to other smoking-related diseases. We should never let the stigma of smoking affect our commitment to seek better detection and treatments for those affected by smoking-related disease. Unfortunately, this requires a change the perception of societal stakeholders, Congress (the NIH), other private funding agencies and scientific institutions.

Primary providers are absolutely right to greet lung cancer

screening with skepticism. However, when asked to host a presentation on lung cancer screening to a group of primary care colleagues, I indicated the Number of Needed to be Screened (NNS) in the NLST to save one life from lung cancer (320), and asked whether the audience could tell me the same number for mammography in women over age 50 (approximately 1,200). Answers ranged from correct, to two orders of magnitude lower (one guess was 10), yet when the actual number was revealed, none expressed second thoughts about mammography as a cancer screening test. If lung cancer screening efficacy is viewed skeptically, are these the same providers that openly embrace other less effective screening modalities? By any measure, lung cancer screening as a modality for early detection performs at or above the level of mammography. On the other hand the harms of lung cancer screening have been minimized by those advocating so strongly for its widespread application. These harms include the false positives, false negatives, anxiety, and the potential consequences of unnecessary invasive procedures. The most insidious harm in my opinion, overdiagnosis, may be the least well understood. I think we as a profession need to get very comfortable discussing the probability and consequences of “over diagnosis” of cancer [2].

Health services researchers, with their societal and economic perspective are also correct to worry about the widespread application of lung cancer screening. The wisest among these recognize that lung cancer screening, when applied to those at highest risk is likely to be both highly cost-effective and clinically justified, even while urging caution in over interpreting the benefits [3].

From where we stand now, the future direction must include improved understanding of lung cancer risk at an individual level. There are numerous models out there the predict lung cancer risk, with varying degrees of sensitivity, and specificity. Employing these models in ways that help patients understand their own risk, and help providers identify those who can benefit from screening is of paramount importance. Development, validation, and deployment of decision aids and their incorporation into electronic health records is another area where significant advances can and should be made. Unfortunately, the IT infrastructure of many widely adapted electronic health records are so rigid as to not permit the inclusion of new decision-aid tools. We, as a profession, have a poor understanding of how to develop, and employ decision-aids in the exam room. Examples of this

include over-reliance on relative risks and benefits, as opposed to employing tools that unambiguously display the absolute benefits and risks of screening interventions. One colleague who used a decision aid employing estimates of absolute benefits and risks of lung cancer screening has observed, anecdotally, that even high-risk patients given numbers describing their absolute lung cancer risk and the benefits of screening were unwilling to consider lung cancer screening, yet they continue to inquire about equally effective (or even ineffective) screening methods such as screening for breast, and prostate cancer. Our own screening program is disproportionately sought by the “worried well”, for whom harms likely outweigh benefits, while higher risk individuals remain unaware of the potential benefits of screening. This is consistent with findings in other countries where those most likely to benefit are the ones least likely to seek screening [4]. Decision aids are likely to be most effective when their value is related in the context of other widely accepted medical practices, such as vaccination, smoking cessation, and other widely excepted screening practices. For example, a heavy smoker at age 70 who is otherwise healthy should recognize that low dose CT screening for lung cancer is a far more proven potential benefit than a PSA. It may be time for the medical profession to find ways to put medical interventions in context, and give consumers of health care services information in a way that allows them to see the actual costs, risks and benefits of all the interventions we have to offer.

Finally, one must not discuss lung cancer screening without acknowledging that tobacco cessation is the most effective means to reduce lung cancer mortality.

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