

Melanie: Welcome to the podcast series from the specialists at Penn Medicine. I'm Melanie Cole, and I hope you'll join us as we discuss the new guidelines for low-dose CT lung cancer screening by the US Preventive Services Task Force, *Saved By The Scan*. Joining me today is Dr. Doraid Jarrar. He's a thoracic surgeon at Penn Medicine.

Dr. Jarrar, I'm so glad to have you join us today. So as we get into this screening, first tell us a little bit about what you're seeing as far as incidence and awareness of lung cancer. Are providers discussing smoking cessation with their patients? Tell us a little bit about what you're seeing now in the trends?

Dr Doraid Jarrar: Well, Melanie, first of all, thank you so much for having me on the podcast. And that's a great start to a very important topic in sort of general overview. I actually just, Melanie, had the pleasure of having in my office Dr. Frank Leone from our Tobacco Cessation Center to discuss that a little bit and get really the inside scoop. And, you know, smoking cessation is certainly a big part of lung cancer screening. It's actually felt that smoking cessation in conjunction with lung cancer screening is sort of a teachable moment in a journey of a patient to really make it stick and make it successful.

Smoking cessation itself is underutilized most likely. And the process of getting patients to quit smoking is a long journey. And certainly, it does require sometimes even referral to a specialist, a counselor, which certainly is available at many medical centers. And we work very closely with our Tobacco Counseling Center here really to make this a concerted effort to work with the patient along the journey.

Melanie: Well, I certainly have seen that as well. So Dr. Jarrar, tell us a little bit about low-dose computed tomography and what's going on now. And there've been some updated guidelines, tell us about those.

Dr Doraid Jarrar: So I think historically I have to give you a very brief overview. Lung cancer is the most common cause of cancer deaths in the United States and worldwide. And we have not made much progress in the last 40 years. So, in the past, we certainly knew from the 1940s that tobacco use is associated with increased risk for lung cancer. But we never rarely were able to screen patients in a fashion that we can recommend with good evidence. And in the past, chest x-rays have been used, but have not been really found to find lung cancer early enough and it was sort of neglected again.

The largest study was then started in 2004, the National Lung Screening Trial, which was very expensive, \$250 million, more than 50,000 participants. We

really have chosen a high risk category of patients, those who were current or former smokers, they quit less than 15 years ago, who smoked a pack a day for 30 years, so a 30-pack year history. And it led to very important findings, including the fact that there's a relative reduction in lung cancer mortality of about 20%.

Now, the other arm of the study was actually patients that were also at high risk, but were followed with annual x-rays. In reality though, until we had this study, really, there was nothing, there was no screening, there was no x-ray. When patients became symptomatic, you would then work them up and get a CAT scan. So the benefits are probably much more than 20%. And it took a while to get this approved by the government, by all the insurers, by the United States Preventive Services Task Force and, eventually, by the Center for Medicare and Medicaid Services.

As we then continued to study the results of lung cancer screening, we felt that we're still missing out on an important population that is certainly at higher risk and, hence, the guidelines which initially were written to include patients age 55 to 80 were now widened to include patients ages 50 to 80, and also instead of 30-pack-year history, 20-pack-years make you eligible for screening.

Also, from the research, it's been shown that we really did not include patients of underrepresented and underserved communities where tobacco use is very prevalent and mortality of lung cancer is very high. So by extending the guidelines to now ages 50 to 80 and lowering the pack years from 30 to 20, we think we have increased the population that can be screened and potentially be safe from lung cancer.

Melanie: It's so interesting. That was a very comprehensive answer, Dr. Jarrar. So tell us a little bit about what your outcomes have been. What has it been like when you see patients come through this process?

Dr Doraid Jarrar: Well, my very first experience dates back to 2016 when I had my first patient that had a screening CAT scan. She was a 62-year-old woman with 30 pack years. And she did undergo a lung cancer screening study. And we did find a very small cancer on the left side of her lung, the left upper lobe. And since we found it so early, we actually were able to offer her a curative surgery and we did not have to remove the entire lobe. Since it was small, we were able to remove half of the lobe. So not only did we cure her from a lung cancer, but we also removed much less lung tissue. We did a partial lobectomy. So we preserved her quality of life, her ability to pursue all

activities. At the same time, she was a smoker when we initially met and she also since then has successfully quit smoking.

So it was really a victory for the patient in terms of quitting a habit that has many other consequences, not just in terms of lung function, but also COPD, cardiovascular complications and consequences, but also curing her of lung cancer and being sort of a model of why early screening can find lung cancer early and provide a cure by surgery.

Melanie: So Dr. Jarrar, if only about 15% of eligible people have been screened, do you have any sense of why we haven't done better? And what would you like providers to know, some practice considerations as they discuss this with their patients?

Dr Doraid Jarrar: So Melanie, that's a very important question and I don't think we have all the answers, but I think we do have some answers. In all honesty, with lung cancer, which is most commonly in 90% caused by tobacco use, there's probably some explicit bias towards smokers and maybe we don't push them hard enough to get a lung cancer screening study.

Also, many times patients are reluctant to admit to themselves that they have a habit that's harmful to them in the long-term. It's rewarding short-term because it provides them a sense of pleasure to smoke, but in the long-term, it is harmful. So many patients might not want the study immediately. They don't want to admit, and maybe they avoid the discussion of tobacco cessation, which should always should be offered in conjunction with the lung cancer screening study.

We also have now learned that in many underserved communities, you might not have the same insurance coverage that would really make this a barrier-free, no copay screening study. Those are probably one of the biggest challenges that we have to really increase our screening rates. In addition, there might be some concern that if you get a CAT scan and there's a small nodule, that's most likely benign, then eventually on the go additional procedures, studies, biopsies that might be ultimately harmful. We have sort of ameliorated that concern by really having a very uniform language how these lung cancer screening studies get reported. We use what's called Lung-RADS, which is sort of modeled after the BI-RADS, which is the reporting language system for breast cancer, which is very specific and very comprehensive and gives specific recommendation to the ordering physician to really, when there's an abnormality, sort of know what the next step would be and should be.

Melanie: Such a fascinating topic, Dr. Jarrar. As we get ready to wrap up here, tell us a little bit about what you're hoping to see in the future, a blueprint for future research, anything you would like other providers to know about low-dose CT lung cancer screening and what you're doing at Penn Medicine.

Dr Doraid Jarrar: I think many providers have very busy schedules and part of ordering a lung cancer screening study is also an informed discussion about the risk of the screening study, which is a very low dose of radiation versus the potential benefits. And it does require some documentation. So we do have to simplify this process. Ideally, it should be incorporated into the medical records and there should be a flag when a patient is eligible. I think that would be a big plus moving forward to really kind of flag all patients that fulfill the age criteria, again age 50 to 80 and have had 20-pack-year history of tobacco use and quit less than 15 years ago. I think that's been worked on. It's part of the medical records and the push to really uniformly have medical records available in the healthcare space. That's one of the initiatives.

The other one is really patient awareness that patients actively seek out their provider to talk about lung cancer screening, get more information, and overcome the stigma that they have been a smoker or are a smoker and really seek help and overcome the addiction of tobacco use, but also do the best for their health and seek a screening study that could potentially save their life and, as you said at the beginning of the podcast, saved by the scan.

Melanie: Certainly great information. Dr. Jarrar, what a great guest you are. Thank you so much for joining us today and sharing your expertise with other providers. To refer your patient to Dr. Jarrar at Penn Medicine, please visit our website at pennmedicine.org/refer or you can call (877) 937-PENN. That concludes this episode from the specialists at Penn Medicine. Please remember to subscribe, rate and review this podcast and all the other Penn Medicine podcasts. I'm Melanie Cole.