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Welcome to Yale Cancer Answers with doctors Howard Hochster, Anees Chagpar and Steven Gore. I am Bruce Barber. Yale Cancer Answers is our way of providing you with the most up-to-date information on cancer care by welcoming oncologists and specialists who are on the forefront of the battle to fight cancer. This week in recognition of lung cancer awareness month, it is a conversation about early detection and screening for lung cancer with Dr. Lynn Tanoue and Polly Sather. Dr. Tanoue is a professor of Pulmonary Medicine at the Yale School of Medicine and Director of the Yale Lung Screening and Nodule Program, Polly Sather is the coordinator of the Yale Lung Screening and Nodule Program, and Dr. Hochster is a Professor of Medicine and Medical Oncology at Yale School of Medicine and Clinical Program Leader of the Gastrointestinal Cancers Program at Smilow Cancer Hospital.

Hochster So, how is lung cancer awareness going? Tanoue Well, I think lung cancer awareness is better than it used to be. I think people talk much more openly now about lung cancer than 20 years ago when it carried a lot of stigma. I think people are much more willing to talk about it and acknowledge it and it is helping us get past that barrier to patient care.

Hochster That is very encouraging. Lung cancer is still the most common kind of cancer today in the United States. Tanoue That is true. Lung cancer is less common in terms of diagnosis than breast cancer or prostate cancer, but it causes more deaths than breast, colon, prostate, and pancreatic cancer all put together. So, it really is from my perspective the #1 problem with cancer in the United States and actually that is true in the world as well.

Hochster Right. So, there have been some big advances and discoveries made in screening and early detection for lung cancer, and I know we are very involved in that here. Can you tell us about that? Tanoue Sure. So, the National Lung Screening Trial which was completed and reported in 2011 was the biggest study in the world to demonstrate that there is benefit with lung cancer screening with low-dose CT scan. Previous work that had looked at chest x-ray really did not demonstrate that lung cancer screening with that modality saved any lives, but the National Lung Screening Trial demonstrated that and annual low-dose CT screen in a high-risk population defined by age and amount of smoking does save lives, and so we have been screening at Yale since 2011.

Hochster And what does that mean, low dose? 00:03:05 into MP3: https://ysmwebsites.azureedge.net/cancer/2017-YCA-1126-Podcast-Tanoue_322166_5_v1.mp3

Sather It is a low radiation dose for the CAT scan and it is equivalent to about eight chest x-rays, whereas a full-dose CAT scan is equivalent to about 100 chest x-rays.

Hochster So, the way I kind of understand it is like the chest x-rays, you cannot really see small things, they kind of get lost in the shadows and the CAT scans are a lot better and that is why it works better? Tanoue The CAT can is essentially a 3-dimensional look at the lung. Chest x-ray is like taking your lung and compressing it into like a piece of paper, and so you do not have much detail. Chest x-ray is still a great imaging tool for things like pneumonia, but it is really not a good imaging tool

when we are looking for small early cancers that may be as small as a dime. So, CT scan really allows us to look to that level and the low-dose technology really allows us to do that safely. Hochster And so, if somebody is going for a screening CAT scan, what is actually involved with that? Sather Well, first they have to meet criteria for lung cancer and it is important to talk about that, so people that get benefit from lung cancer screening are between the ages of 55 and 77. This is all the data that we learned from the National Lung Screening Trial. They, between the ages of 55 to 77 and have smoked for a pack a day for 30 years, so we talk about this in terms of pack-years and are actively smoking within the past 15 years, so that is the kind of the group that we found will benefit from lung cancer screening, and so they come in and the CAT scan itself is quick and easy, there is no IVs, there is no dye and it takes about 5 minutes, it is not an enclosed situation either. So, people with claustrophobia do quite well. Hochster So, basically they come in and lie down on the little bed and they go through the donut of the CAT scanner and it takes less than 5 minutes. Sather Correct. They put their hands above their head, take a deep breath and hold it, they take the pictures and they are all set. Hochster Okay, no IV, no need to get stuck. Sather No. Hochster And when you say those criteria need to be met, like if I am 50 but I have smoked a lot and so I do not quite meet the criteria and I wanted to get a scan, can I get one then? 00:05:34 into MP3: https://ysmwebsites.azureedge.net/cancer/2017-YCA-1126-Podcast-Tanoue_322166_5_v1.mp3 Tanoue There really are not data to say you should get that scan. If you are 50 and you are smoking, your risk is less than if you are 55 or 75 and smoking in the National Lung Screening Trial, and we really tried to stick to that population where there is proof of benefit, really does not start until 55. If you feel that you are at high risk for some reason and that really is a discussion you should have with your primary care doctor. One important piece of the screening process is that there is a requirement for the visit called the Decision Support Visit that occurs prior to the scan and part of the purpose of that visit is to really discuss the patient and the doctor, the patient's risk for lung cancer and whether the screen should be done at all. Hochster I see. And so, they get, in our program here, they come and they get the screening CAT scan and then what happens? Tanoue So, actually in our program here, the first step is the question of do you meet those criteria that are set out by the United States Preventive Services Task Force. And if you meet those criteria, then we do that decision support visit prior to the screening test because it is not just a scan, I think because there are potential harms related to any screening study, there have been rules put in place essentially so that that decision visit occurs before the scan, and at that visit, we discuss with the patient their individual risks and their potential individual benefits from having the study done. Polly does those decision support visits, so it probably would be helpful to hear from her how they are done. Sather So, it is actually human nature to feel fearful of cancer screening. No one really wants to be told that he or she has a cancer, and therefore, the screening has become a complicated process. The Centers for Medicare and Medicaid Services actually require this decision support visit prior to having the low-dose CAT scan for lung cancer screening and this is the

first time that this kind of discussion, which we call a shared decision making visit is required by our healthcare system and shared decision making is a model of a patient-centered care, which enables and encourages people to play a role in their medical decisions that affect their health and it operates under two principles; first, consumers are armed with good information and can participate in their medical decisions and second, the clinicians really need to respect those patients' goals and preferences when we are talking about their treatment and their different options. So, in that, the purpose of the visit really we discuss the benefits and the harm of lung cancer screening, we talk about the ease of the scan itself, we calculate their individual risk of getting lung cancer using a calculator. We talk about the potential findings on the CAT scan, 25% of the people in this high-risk group will have a lung nodule, most of those do not end up being cancer. We discuss follow-up testing options and we offer counseling for smoking cessation. Hochster And so, the risks that you are talking about are not actually the risks from lying down on the table and getting the picture taken. It is more related to what is found and then what happens after the screening, is that right? 00:09:10 into MP3: https://ysmwebsites.azureedge.net/cancer/2017-YCA-1126-Podcast-Tanoue_322166_5_v1.mp3 Tanoue So that we know from long experience in many studies that lots of people have what are called nodules, spots in their lung, and when we are doing scans for the purposes of screening, the vast majority of those little spots or nodules are not cancers. So, the people have to be prepared with that knowledge because it is quite likely that they will have one or more spots identified, on average 25% of people who have a scan will have a spot, but 96-97% of those spots are not cancers. And so, in the early days of screening, I am talking now 2010, 11 and 12, what we became very aware of was that issue, so that we want to be able to focus in on the patients whose spots are concerning, but they are the vast minority and we certainly want to be able to reassure people whose spots are not concerning of that right upfront. And that decision support visit gives us an opportunity to do that. It also really is important for the patient to understand what their risk is. In the National Lung Screening Trial, the population was at relatively lower risk than the average American population who is that age and who has smoked. And so, what we are seeing in our screening population at Yale is that our cancer rate is slightly higher than might have been predicted by the study because the people who are coming in to be screened seem to be at somewhat higher risk and so it is really important to sit with them and talk about that before the scan is done. Hochster So, if you find some of these nodules or spots on the lungs, you might to say, get a followup scan or do you say go get a biopsy? Tanoue Yes both of those things. And so, because the finding of the spots is so common, the American College of Radiology has a very specific standardized algorithm for the reporting out of those nodules with the intent that it will minimize any harm to patients by doing unnecessary biopsies or more imaging than is really required. And so, we absolutely follow that American College of Radiology guideline, but there is a lot of discretion that goes into the recommendation depending on who the person is, what their risk is, what the nodule looks like and so forth, and so it is important that there be physician input into that because

those decisions require clinical judgment. Hochster So, Polly how do you deal with patients who like you have some findings and then they are very anxious about what to do? Sather So, before we started doing the decision support visits before there was reimbursement for lung cancer screening, we offered 4 free screens a year when we had the data before the reimbursement was there and I spent most of my day kind of talking people off a cliff because they would get a call saying they have a spot of this size and we are going to follow up in a year. So, I think just the fact that now we have that decision support visit and this conversation prior to their scan and I tell them there is a 25% chance you are going to have a spot, we are going to look at it closely, we have 3 dedicated chest radiologists that actually are specialized in looking at these and they have special programs where they can measure the density and they are very good at picking out what is concerning. A lot of people do not like to watch and wait, but that is really the best course of action for them. 00:12:57 into MP3: https://ysmwebsites.azureedge.net/cancer/2017-YCA-1126-Podcast-Tanoue_322166_5_v1.mp3 Tanoue So, one thing is that we are not ordering the scans, the primary care physicians or sometimes the patient's pulmonologist is ordering the screening study. And so, we facilitate the decision support visit, we do the scans at Yale, we see the results and we make sure the primary care doctors or whoever ordered the study has those results and the recommendations are very clearly called out in that, so that our role here is to facilitate. Often times, if there is an abnormality, we do have the followup piece to screening, which is the Yale Lung Nodule Program, which is really set up partly for this purpose that we have an established process that anybody who has an abnormality could if their primary care doctor wished be referred back to us for evaluation. Hochster So, you have like a clinic program where you are actually seeing people on an ongoing basis, you can follow them and reassure them. Tanoue Absolutely. Sather Correct. Hochster That is really great. Well, we are going to take a short break for a medical minute. Please stay tuned to learn more information about lung cancer screening in recognition of November's Lung Cancer Awareness Month. Medical Minute Support for Yale Cancer Answers is provided by AstraZeneca, a biopharmaceutical business that is pushing the boundaries of science to deliver new cancer medicines. More information at astrazeneca-us.com. Breast cancer is the most common cancer in women. In Connecticut alone, approximately 3,000 women will be diagnosed with breast cancer this year. But thanks to earlier detection, noninvasive treatments and novel therapies, there are more options for patients to fight breast cancer than ever before. Women should schedule a baseline mammogram beginning at age 40 or earlier if they have risk factors associated with breast cancer. Digital breast tomosynthesis or 3D mammography is transforming breast screening by significantly reducing unnecessary procedures while picking up more cancers and eliminating some of the fear and anxiety many women experience. More information is available at YaleCancerCenter.org. You are listening to WNPR, Connecticut's public media source for news and ideas. Hochster Welcome back to Yale Cancer Answers. This is Dr. Howard Hochster and my guests tonight are Dr. Lynn Tanoue and Polly Sather, who are joining me to discuss screening for

lung cancer. So, we talked a little bit before about the screening program with the low-dose CAT scans for people at risk, so who should be concerned about the need for this test, who are the people who actually are at risk? 00:15:46 into MP3: https://ysmwebsites.azureedge.net/cancer/2017-YCA-1126-Podcast-Tanoue_322166_5_v1.mp3 Tanoue So, we try to focus on the population that was screened in the National Lung Screening Trial. The criteria for that were people who were 55 to 75 or 77, and who had smoked for the equivalent of 30-pack years. So, 1-pack-year is 1 pack of cigarettes per day for a year, so 30-pack years can translate into 1-pack per day for 30 years or 2 packs a day for 15 years, and the National Lung Screening Trial population included only people who had been smoking within the past 15 years. So, there were a lot of people who had quit smoking but who had a history of the 30-pack years and they were included. We certainly recognized that there are other risks for lung cancer that factor into an individual person's lung cancer risk, but for the purposes of screening, we try to stick to those criteria which were established by the United States Preventive Services taskforce. However, there are lots of people who have family members who have had lung cancer, who have had exposure to domestic or environmental carcinogens such as asbestos or radon who have concern about that. And there are models that exist, good ones, that can help in individual patient understand their personal risk, although those models are always developed for populations and so application to an individual has to be done with some caution. And those are the sorts of discussions that should occur for instance prior to the screening CT scan, in the decision support visit or with your primary care doctor. Sather And if people are interested in finding out more about these calculators, there is one that is online that is free and available put out by the University of Michigan which a lot of the large cancer programs use in reference, it is called shouldiscreen.com and this website has a calculator that is available to help people estimate their likelihood of developing lung cancer. It is individualized and it takes into consideration age, smoking history, your family history of having lung cancer, presence of COPD or emphysema, they are all included in this calculator. Hochster And those are all things that can help you make a decision if you should get scanned or not. And you spoke before about the coverage Medicare CMMS, but what about people who are not Medicare insured who have third party insurance or they are younger, if I smoked 3 packs a day for 10 years and I am not Medicare yet, can I get coverage for this kind of screening? Tanoue Simple answer is yes, that all of the private insurers follow the United States Preventive Services Taskforce's recommendations. If you have a desire to be screened and you do not meet the criteria and your insurance company will not pay for a scan, you can always pay for a scan yourself, but again, I think when people are that concerned, that really merits a discussion with your doctor about the pros and cons of having the scan done. Hochster And usually if you are not 55, will insurance cover it? Tanoue It is really variable, it is hard to answer that with a yes or no. Hochster And so, this is the kind of discussion that patients should have with their primary care physician and then they would refer them to the screening program. 00:19:29 into MP3: [5](https://ysmwebsites.azureedge.net/cancer/2017-</p></div><div data-bbox=)

YCA-1126-Podcast-Tanoue_322166_5_v1.mp3 Tanoue They can refer them to our screening program and we actually will do that discussion again with the patient. I think screening is something that should occur as a preventive intervention in the primary care setting, but we certainly recognize that primary care doctors are really stressed for time, are doing lots of screening interventions and lung cancer screening is really the only one for which this decision support is required. And so, although the primary care physicians are doing decision support for all screenings, this one really requires I think a little extra effort and time, and so we are happy to provide the service if people want to come to Yale New Haven to be screened. Hochster So, the whole point of this is to help cure more people. Tanoue That's right. Hochster So, do we do that? Tanoue And so, the whole purpose of screening is to detect cancer before it is causing symptoms, at stages where it can be cured more reliably, and while you know as an oncologist that all of the treatments for lung cancers have really advanced over the last 10-15 years, we can save many more lives if we diagnose lung cancer early where we can do surgical or radiation interventions to cure. So, yes early detection saves lives and we are pretty excited that lung cancer screening finally has hit the public and so that it has only been available for the past 5 or 6 years, I think it is under-utilized and really should be out there more for people to be aware of, to be requesting it, for primary care doctors to have the time to have those discussions so the scans are ordered. Hochster So, if I understood your numbers correctly, if you have screened 100 people, you will find 4 or 5 lung cancers. Tanoue If you meet the United States Preventive Services Taskforce criteria, the risk for lung cancer in that population is probably about 2% over the following 6 years, so we consider that actually high risk. So, in our screening population, over the past 4-5 years at Yale, what we are seeing is that our patients have a higher risk than that. We are finding more than 2% cancers over the 6 years and that is the experience of all the screening centers across the country because inevitably when you do a big study like the National Lung Screening Trial, you get a healthier population than the average American population and so the Veterans' Administration and most of the big screening centers are seeing a risk of lung cancer in their screened population that is higher than 2% over 6 years. Hochster And for those people where you find a cancer and you operate on, are they mostly cured? Tanoue If they are early stage, they have a really good chance at being cured. Stage I lung cancer that is treated surgically has a 5-year survival, that is between 70 and 90-plus percent and we consider a 5-year survival a cure. If you are diagnosed at a more advanced stage, the survival goes down, and so that is why we are so eager to diagnose these early. 00:22:57 into MP3: https://ysmwebsites.azureedge.net/cancer/2017-YCA-1126-Podcast-Tanoue_322166_5_v1.mp3 Hochster So, Polly what should people do if they are concerned about this, how do they get into the program and who should they contact? Sather So, the first thing to do is to have a conversation with your primary care provider. They really need to be in the mix with this because it is prevention, and so the primary care provider will order an initial lung cancer screening CAT scan and that will automatically trigger a decision support visit in our program and the CAT scan, and then they will be in this registered

database that we actually report to the American College of Radiology where they are collecting data about this. There is also some other good resources out there, the American College of Radiology has a very robust website, both for providers as well as for patients where you can look at centers that are considered designated lung cancer screening centers and those are usually multidisciplinary programs that do similar work flows and processes as us with the decision support visit. Hochster Can somebody just call up and come in get it? Tanoue We really want people to go through primary care providers because that is where the continuity is, and lung cancer screening is not a one-time event. There are so many other things that go into that patient's healthcare and it is really important that the primary care provider be the point person for that. Anybody who comes to our program, we will actually track so we will send a reminder to the primary care provider when it is time to re-screen, usually annually, and we make sure that the results get to the right place, but we really recommend this be done through the primary care provider. Hochster So, you want to work with the primary care provider? Tanoue Absolutely, right. We have really open lines of communications. One thing about our screening program is it is embedded in the thoracic oncology program, so it is the beginning of that whole continuum. We have the resources to do that but lots of people do not have access to that sort of continuum and so again the primary care provider should have their rudder on everybody's ship, and so it is important that screening be done in that setting. Hochster Well, that is very interesting way of tracking people and following them up, and what about smoking cessation, I mean that is kind of an important part of lung cancer awareness and Tanoue There is no question that smoking cessation is better than any screening. It will save more lives if we have people quit smoking than if we perform all the screening in the world. So, smoking cessation should be a priority and it is clear that smoking cessation at any decade of life even if you are 60 or 70 or 80, diminishes your risk for lung cancer substantially as well as improves your health overall. So, we have a smoking cessation group at Yale and Yale New Haven Hospital that is very active. They are actually standing in our screening program, so if you come for a screening with us, you have immediate access to that program if you want it and we really do try to emphasize that smoking cessation is more important. It is the most important thing you can do for your health. 00:26:29 into MP3: https://ysmwebsites.azureedge.net/cancer/2017-YCA-1126-Podcast-Tanoue_322166_5_v1.mp3 Hochster And that is in addition to even lung cancer, heart disease and other non-malignant lung disease? Tanoue Absolutely. Right. So, the benefit to the vasculature, to your blood vessels and your brain and your heart happens really quickly. The benefit in terms of reducing your risk for lung cancer happens over time, and certainly if you stop smoking, your risk for developing emphysema or the other components of chronic obstructive pulmonary disease also goes down. Just a win all the way around. Hochster Okay, important consideration. So, lung cancer awareness month is a good time to showcase other resources for patients locally at hospitals regionally, nationally and the advocacy groups. Can you share some resources that you recommend to patients and our listeners who are concerned about lung cancer. Sather So,

we have a website at Yale Cancer Center and you can reference that. Also, the American College of Radiology that I spoke about has a website both for providers and caregivers and patients, and they have a list of all of the Centers of Excellence in the United States where we recommend screening - they kind of developed programs. And then, the other great resource that I mentioned shouldiscreen.com is one that people use and that talks about the risks and benefits of screening and then individual calculator is on there, and then the American Lung Association also has a whole section on lung cancer screening, which we found very valuable. Hochster And those have websites for the general public who are interested in the question of screening, what is my risk, what are the risks and benefits of doing it, all the things that they should take into account? Sather Correct. The one shouldiscreen.com from the University of Michigan is the one that is most widely used and recommended, that is where individuals can go on and actually plug in their own information, their age, their smoking history, their ethnicity and come up with a score. Hochster Say like don't worry or like get immediately to a CAT scan or something?? Sather It will say your risk of getting lung cancer is X percentage in the next 6 years. Hochster So the key thing is look into some of these resources and talk to your primary care physician about being referred. Sather Right. And in terms of coverage, the only other thing that I would add is it was covered as a preventative service by the United States Preventative Taskforce and Medicare and Medicaid, so it is similar to a mammogram, which means that there is no co-pay, no deductible, so finances cannot really be on the list of excuses. Polly Sather is the Coordinator of the Yale Lung Screening and Nodule Program and Dr. Lynn Tanoue is a Professor of Pulmonary Medicine at the Yale School of Medicine. If you have questions, the address is canceranswers@yale.edu and past editions of the program are available in audio and written form at YaleCancerCenter.org. I am Bruce Barber reminding you to tune in each week to learn more about the fight against cancer. You are on WNPR, Connecticut's public media source for news and ideas.