

Welcome to Yale Cancer Center Answers with your hosts doctors Anees Chagpar, Susan Higgins and Steven Gore. Dr. Chagpar is Associate Professor of Surgical Oncology and Director of the Breast Center at Smilow Cancer Hospital. Dr. Higgins is Professor of Therapeutic Radiology and of Obstetrics, Gynecology and Reproductive Sciences and Dr. Gore is Director of Hematological Malignancies at Smilow and an expert on Myelodysplastic Syndromes. Yale Cancer Center Answers features weekly conversations about the research diagnosis and treatment of cancer and if you would like to join the conversation, you could submit questions and comments to canceranswers@yale.edu or you can leave a voicemail message at 888-234-4YCC. This week it is a conversation about smoking cessation with Dr. Lisa Fucito. Dr. Fucito is Assistant Professor of Psychiatry and Director of the Tobacco Treatment Service at Smilow Cancer Hospital. Here is Dr. Steven Gore.

Gore Tell us about the tobacco cessation service at Smilow. What is offered there and what do you do?

Fucito We offer individual counseling and medication to patients who have just been diagnosed with cancer, who are cancer survivors or patients who are undergoing a number of different treatments, so patients who are undergoing surgical procedures, who are going to be undergoing radiation or chemotherapy and we work with them to develop an individualized plan to help them make, ideally, substantial changes to stop smoking prior to a lot of these procedures, but if they are not able to do that, to help them at least get a head start so by the time they come to us following treatment, they can continue to make further changes and ultimately stop.

Gore I see, so the services at Smilow in terms of tobacco cessation are restricted to people with the diagnosis of cancer?

Fucito We actually accept referrals from other hospitals, so we do get referrals from the rest of Yale-New Haven Hospital but we primarily are a Smilow based service.

Gore Gotcha.

Fucito But most hospitals have a hospital-wide tobacco treatment service, but we technically do not have that officially at Yale-New Haven. We started with Smilow and are looking to try to see if we can extend the services throughout the hospital.

Gore So how long has this program been in place?

Fucito It has been in place since about 2007 and it started off with just one of my predecessors floating around the different departments throughout Smilow looking for patients that were smokers and trying to see if he could walk in the room and just talk to them and see if he could engage them in treatment and over time, it evolved. We now have a designated place and the patients can come into a designated room. We are not trying to stalk the hallways for smokers, now we actually have an organized service.

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Gore That sounds like the early days of Alcoholics Anonymous from what I understand.

Fucito Yes, right.

Gore Pounding the doors and trying to get people sober, so that is fascinating. What is the staffing like, what is your training and who else is on staff there?

Fucito I am a clinical psychologist by training and I studied addiction, so I went to graduate school, and that is what I studied and then my postgraduate work here at Yale has been in addiction. We also have advanced practice nurses on our team, physicians, and we also run some clinical trials through the service and we also have research staff. It is a multidisciplinary team essentially.

Gore So you are doing research as well as treatment?

Fucito Yes. There is a new lung SPORE that was just awarded to Yale.

Gore What is a SPORE?

Fucito It is a specialized program of research where we are going to be focusing on patients with lung cancer and treatment for lung cancer.

Gore That is a type of grant, is that right?

Fucito Yes, it is a very important grant that we were awarded. It is a center grant, it is a very large center that has been established now at Yale and we are going to be one of the core projects that is going to be part of that. Essentially, patients who are going to be coming into the lung cancer screening program, that is an opportunity for us to engage with them around their tobacco use and so we are going to be testing one or two interventions that potentially will be helpful to see what is the right feedback about how to get these patients to help motivate them to quit smoking.

Gore So you are studying 2 interventions, two different ones?

Fucito Yes, essentially they will get randomized to 1 of 2 behavioral interventions.

Gore I see, you are comparing 2 different interventions.

Fucito Yes.

Gore But not all lung cancer patients are smokers, is that right?

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Fucito Right, technically to be eligible for lung cancer screening you have to have a 30-pack year history.

Gore Pack year, what does that mean?

Fucito It is basically an algorithm we use to establish the amount of exposure that someone has had to tobacco. And so we essentially look at the number of cigarette packs someone may have smoked across their lifetime and so 30 years of smoking a pack of cigarettes is the threshold that they look at and essentially those patients are now eligible for the screening program but a number of patients have actually already quit smoking, but nevertheless, they may have quit smoking 10 years ago but they still technically have had this 30-year smoking exposure that puts them at risk. We know that after about 15 years after patients have quit smoking they are still at heightened risk relative to a nonsmoker.

Gore So you are screening smokers for cancer, is that right, in the study?

Fucito Well the overall lung cancer screening program is obviously screening all patients.

Gore I see.

Fucito But within the study, we are going to be targeting people who are still smoking.

Gore Can you talk about what the 2 interventions are that your study is examining?

Fucito We are going to be looking at health feedback, for example, so there are a number of different biomarkers, and a biomarker is essentially a biological component of someone that you can give some feedback about and obviously cancer risk is one of those, but in any given moment, it may be hard to feel motivated by certain percentages of cancer risk, so there are other tests that we can give patients to give them a little bit more sort of in the moment feedback about how their body is doing right now and that is why we use a lot of biomarker feedback, so we will be looking at their lung function. We will be looking at some liver function scores and some of their skin keratinoids which is a very complicated term but essentially what it means is these are important chemicals in the body that help us to fight cancer and one of the things that we know is that smokers potentially have lower levels of these important chemicals to help them fight cancer.

Gore Even if they eat a lot of carrots? Doesn't that come from carrots or stuff like that?

Fucito Yes, beta carotene is one of them. Even if you have a healthy diet it can sometimes be negative, smoking can negate the benefits of eating well. It does not technically offset the risks of smoking, so these are going to be some of the health markers that we are going to give feedback about and in one group, we are going to give this feedback and in the other group, we are going to assess for these but we are not technically going to give them the feedback. I am looking to see if you get this additional information about your health status, is that motivating? We are also going to be

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giving different videos to talk about the benefits of smoking cessation and one of the effective strategies that we found over the years is that when you talk about more of the benefits of stopping tobacco use that is actually a lot more motivating than talking about all the risks and harms. If you look at the odds that are on television for example if anyone has ever watched a sports event played at night, you see some of these New York State Quit Line ads and sometimes they can be quite scary. They can be showing some really awful effects of smoking. Now we know those are very motivating for young people to not start, but someone who has been smoking 30 or 40 years, they have actually sometimes be shown to backfire because you already feel really bad about the fact that you are smoking and then you feel even worse. Among people who are smoking and are life-long smokers, there has been a lot more research that suggests that you really should emphasize the benefits for those people and not continue to bombard them with a lot of the risks. So that is again what we are going to be manipulating.

Gore And are the subjects also going to be receiving aids like nicotine gum or any of these drugs that help?

Fucito Yes, they will be receiving the nicotine patch and then they will get standard counseling by one of our providers.

Gore So that is kind of standard.

Fucito Standard treatment and then we are looking to see if manipulating some of these other components is also helpful.

Gore What percentage of people who enter a smoking cessation program like yours or similar ones actually are successful in maintaining abstinence from cigarettes?

Fucito Well, if we look at just what is the success rate across the board for people who do not even get support, people that quit what we call cold turkey, just one day you decide to quit and you do not get any support; after about a year, about 7% of those individuals will be smoke free.

Gore 7% is really small.

Fucito Yeah. If you add treatment, so if you add medication and counseling, you typically can get those rates up to 30, 40 or 50%, so we are not up to 100% for sure but we have substantially improved the odds that by the end of the year you are going to be smoke free and so our program really provides all those known evidence based treatments to ensure that people get to that much higher rate.

Gore How does that compare to other addiction cessation programs whether it be amphetamines or alcohol or gambling or anything else? Has that been compared?

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Fucito Essentially if you look at all other substances, what we do know is that nicotine is often the most challenging one for people to stop, so even though we know that it is hard to stop drinking, we know that it is hard to stop using opiates, heroin, painkillers, oftentimes when you look in recovery programs you will see that individuals actually have been able to achieve abstinence from these other substances but they are still smoking and so I would say, I do not know for sure if there has really been a head-to-head comparison of them, but when you look at the recovery rates in general, you see that people often are much more likely to be struggling long term with trying to change their nicotine use, whereas they can make a lot more substantial changes even with no medications, for example, with their drinking, so we know across the board that addictive disorders are really hard and they often involve multiple attempts at trying to make changes and unfortunately relapses and then trying again and nicotine seems to be the one that is worst among those.

Gore And is there anything known about brain chemistry or is it the social milieu in which you are used to smoking, the hand mouth thing or does anybody know why it is harder to quit nicotine?

Fucito I would say all of the above. You basically hit the nail on the head with all of them. Oftentimes, and particularly the people we see in our service, if you think about it, they all started smoking probably around the age of 12 or 13, whereas they may have started drinking early, but odds are that they probably started a little bit later and so among all the substances that people may have tried, this is the one where they really have the earliest exposure, the earliest exposure while their brains were still developing and we do know that early exposure to nicotine, to the developing brain, has substantial changes. It causes substantial neurobiological changes that put people at risk for lifelong dependence on nicotine, so I would say one problem is that people often start very young and they have exposure while their brain is still developing. Another one is that, like you said, there is that social environmental exposure and so a lot of people grew up in households where they see other people smoking and they get exposed to other friends who are smoking and so even though it is probably not as cool to smoke anymore and there is a little bit more of a public stigma around smoking, a lot of people early on when they started felt like they were in an environment where it was supported to smoke, that it was perceived as being okay to do so. Unfortunately there are also these genetic risk factors, so we know that some people are simply just more vulnerable when they started to smoke to becoming very hooked to it, so I think there are some strong genetic components, oftentimes people started very early in life and so when people come in I will say, this is a habit or behavior that you have done millions and millions of times over. You have over learned how to do this, to a point where you do not even have to think about it anymore and that part of it also makes it really difficult for people.

Gore Is it known whether the genetic risk for susceptibility to nicotine addiction is a cross risk for other addictions? Is there an addiction gene? We certainly know from the media and you look at portrayals of Narcotics Anonymous where everybody is smoking, right?12:56 into mp3 file https://az777946.vo.msecnd.net/cancer/2015%201122%20YCC%20Answers%20-%20Dr%20Fucito_237944_5.mp3

Fucito There are actually these receptors in your brain that when you smoke and you take in a tobacco product, they are called nicotinic receptors, basically these doors open when you take in nicotine and they cause a whole bunch of responses in your brain, so a lot of the genetic factors have looked at in particular some genetic variations in the nicotinic receptors in the brain and so while there are probably some overall genetic risk factors across the addictive disorders, there are specific ones to nicotine.

Gore That is really fascinating and I am going to take that up again after our break, but right now, we are going to take a short break for a medical minute. Please stay tuned to learn more information about tobacco treatment and addiction with Dr. Lisa Fucito.

Medical Minute The American Cancer Society estimates that over 1500 people will be diagnosed with colorectal cancer in Connecticut alone this year. When detected early, colorectal cancer is easily treated and highly curable and as a result, it is recommended that men and women over the age of 50 have regular colonoscopies to screen for the disease. Clinical trials are currently underway at federally designated comprehensive cancer centers such as Yale Cancer Center and at Smilow Cancer Hospital to test innovative new treatments for colorectal cancer. Tumor gene analysis has helped to improve the management of the disease by identifying the patients most likely to benefit from chemotherapy and newer targeted agents resulting in a more patient specific treatment. This has been a medical minute brought to you as a public service by Yale Cancer Center and Smilow Cancer Hospital at Yale-New Haven. For more information, go to yalecancercenter.org. You are listening to WNPR, Connecticut's Public Media Source for news and ideas.

Gore Welcome back to Yale Cancer Center Answers. This is Dr. Steven Gore and I am talking tonight with our guest, Dr. Lisa Fucito about quitting smoking and tobacco treatment. Lisa, before the break you were telling us about particular receptors in the brain that sense nicotine and am I right in understanding that maybe there are differences in people's receptors or in their brain response to stimulation with nicotine that predisposes some people to nicotine addiction?

Fucito Yes, right.

Gore The other thing I wanted to pick up on was the question of whether secondhand smoke in the household growing up, does that affect a growing brain in a child or adolescent? Do we know that?

Fucito Secondhand smoke is very dangerous and there is actually also what we

call a third level where one of the things that we know about with nicotine, and some of the other products that come off of tobacco products, is that they are very hard to remove from clothing and from walls. If you have ever gone into places where there has been smoking, and you have heard of the stories where the walls are almost yellow, and so all those exposures to chemicals are very dangerous for people

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and it is possible that getting the exposure that way may sensitize people growing up such that when they initially then have access to it, they potentially have a different response than someone who has not grown up in that environment.

Gore Of course recently in the news, when Paul Ryan took over the speaker's office, there was a lot of information about how the whole place had to be fumigated and painted and everything replaced because Boehner is such a heavy smoker and the place reeked. I am a little rude actually to some of my patients, I am afraid, because I have patients who walk in the room or I walk in the room, they or their family reek, it is very difficult for me to tolerate that, I am very averse to whatever it is in tobacco and I will just comment like, somebody smells like tobacco. Again, I think it is a little rude, but I also feel like it is little bit of reality check, I do not know whether I am out of line there but it is offensive to me and it is so unhealthy for the patient and I want people to realize that they smell.

Fucito I think people probably are aware of it and I think the struggle is, particularly with someone who probably smells at that level, is probably a very dependent smoker and they probably have gotten that feedback before.

Gore Shut up Steve.

Fucito I guess the problem that can sometimes happen is you consider your healthcare provider, your physician, to be someone who you look up to and so potentially when that healthcare provider turns to you and says something that feels a little offensive, it makes you feel more of that stigma.

Gore Good point.

Fucito And so I think acknowledge in your head that you smell it and find a way that you can maybe bring it up, but I think reminding them that it is a bad thing and then oh by the way you smell.

Gore Okay, I learned my lesson there, thank you Lisa.

Fucito Might not be the most motivating.

Gore Point well taken, it makes me feel a little better but you are right, it is probably not necessarily helping the patient. Tell me about the various pharmacological drugs, agents which have been used and seem to help some people, I guess Wellbutrin is one of them.

Fucito There are 3 main medications that we have to help people stop smoking, nicotine replacement, so essentially you are just taking the nicotine that you are getting from a tobacco product like a cigarette and replacing it in another form. You have probably heard of and others in the audience have probably heard of the nicotine patch. It is essentially delivered through your skin for 24 hours, you just put the patch on and the nicotine is absorbed through the skin. There are things like

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nicotine gum and nicotine lozenges which you take orally and again it is absorbed through your mouth. There are also other nicotine replacement products. There is an inhaler, for example, and a nasal spray. Those are not used commonly. There are sometimes adverse side effects, but they are also available as another alternative, so essentially you are really just taking nicotine and giving it in another form, a safer form essentially. Another medication that is available is, like you said, Wellbutrin which is an antidepressant and serendipitously they found that individuals who are at a higher dose, like 300 mg or more, suddenly found that they do not like the taste of cigarettes, so it is helpful for some people, not everybody has a response to it, but for some people, particularly people with a history of depression, that is an effective medication. Our third medication is varenicline or Chantix as it is popularly known. Essentially what they did was they took nicotine and they synthesized the compound a little bit so they made it a little bit different than nicotine and so it is kind of a unique medication in that it acts in some ways like nicotine and so it almost provides a direct replacement, but in other ways, it kind of blocks the effects of nicotine and all three of these are the most effective medications to help people stop smoking.

Gore Are they used together or individually for the most part?

Fucito You can actually use two nicotine products together. There have been some important changes that the FDA has made to labeling of these products that have not necessarily hit mainstream media and so patients coming into our service are confused or concerned when we are giving them this feedback, but essentially you are allowed to use two products at once and in fact, our most effective treatment really is to use a nicotine patch in combination with something like the gum or the lozenge. They work in slightly different ways. The nicotine patch delivers a very slow steady dose and so in an immediate way people do not feel like they are getting a kick of nicotine like they might from a cigarette, but it helps to prevent people from going into withdrawal and people should smoke while on them, it helps them not to find that cigarette very enjoyable, but something like the lozenge or the gum, it is a lot more short acting, so when you take it, you get a tiny little bit of kick but not the same kick you get off of a cigarette, so people often find that to be a little bit more beneficial for cravings, so really using those two products in combination is a very effective strategy and traditionally, the FDA had told patients that they

simply could not use two together and they have changed the labeling on these products so you can do that now. Some individuals have been using varenicline plus Wellbutrin, yet again, thinking of people with a history of depression and so forth, some people also can use varenicline perhaps with another medication like the gum or the lozenge, so really in our service what I tell patients is, let's start with one approach. If they do not feel like it is working we do not let them go too long, we try another one or we add another medication on top of it.

Gore I see, and because you are a clinical psychologist, you do not prescribe drugs, is that right?

Fucito Right, we have physicians who are affiliated with our service or the advanced practice nurses who do the prescribing.

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Gore Tell me about the withdrawal from nicotine, I am fortunate to have grown up in a nonsmoking house and I am a lifelong nonsmoker and I feel very grateful to be able to say that, so I do not really know what that is and although people talk about cravings, is there a physiological or pathological syndrome of withdrawal like you would have from narcotics?

Fucito I think that it is another reason why it is often challenging for people to stop. We know that there is a well-defined syndrome and there are a couple of common symptoms that people experience. People have difficulty concentrating. They have changes in their appetite. People often feel very hungry. People have difficulty with their sleep, more somewhat psychological symptoms that correspond and people feel angry and irritable, anxious, stressed, mad and they are often quite challenging to be around quite frankly in those first couple days and so then that corresponds to them having very strong cravings and feeling really restless and you just want one but you cannot have one, and so some other addictive disorders like you mentioned, opiates, have some additional well defined physiological symptoms, I think there are some with nicotine but also some of them are psychological symptoms and they can be hard for people to overcome.

Gore Is there an average time of tobacco exposure that leads to tobacco addiction if we can intervene within 2 months, 1 month or a week, how quickly do people become addicted to nicotine?

Fucito We primarily have to look at the data in young people because that is when most smoking starts and when you look to see when did someone initiate versus when did someone become a regular smoker, often it is pretty soon, so someone may have had their first cigarette at 12 or 13 and within a year or two, they are regular smokers, so really we need to focus on young people because there is a very small window of time where we can intervene and probably prevent someone from becoming a lifelong smoker, but you can develop an addiction to it pretty quickly.

Gore It is pretty scary. What about the vaporizing e-cigarettes or the various vaporizing tools, I am sure there has not been enough time for a lot of research about it but obviously there is a huge amount of controversy in terms of whether this is a good thing as a tobacco replacement versus a gateway tobacco device, any thoughts?

Fucito It is a challenge for our field because we know that these products are out there. We know that patients have access to them but we simply do not have the data right now to really understand are they harmful or are they helpful. Right now, we are not in a position where we can suggest that they should be used for cessation, there simply is not enough evidence that suggests that they are helpful, so when patients come into our service we ask about it because we want to know if they are using them, but I essentially just tell them about the evidence of what data is out there right now and I advise them that they really should start with the evidence based FDA approved medications because we know that those help people, whereas like you said, one risk that we know about the electronic nicotine delivery systems, or ENDS as they are called for short, is that perhaps they allow you to maintain smoking by being able to use them in places where you could not use what we call combustible cigarettes, cigarettes you light on fire, and so maybe in some way it

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actually perpetuates the problem, it does not necessarily help you to stop, and among young people, the CDC recently had a report that came out within the last year that shows that the rates of use of these products among young people are substantially increasing and of particular concern is that while you may be seeing a reduction in some of the other cigarette use, the combustible cigarette use, we now know that some young people who would never have started smoking cigarettes are now using these products.

Gore Because they think they are safe and it tastes like bubblegum I understand.

Fucito Right, they have all these flavors and they are perceived as cool and they also I think feed into the need for technology, and these are seen as very technological products that are always evolving and that is the young cohort that is very interested in technology and being with the next big thing, so that is a particular age group that we are worried about.

Gore I seem to remember, but I could be misremembering, I saw an article in the newspaper about a study I think in the United Kingdom that supported the use of these ENDS for smoking cessation. Am I making that up?

Fucito Right now we are not conducting any studies in the United States because we have special regulations and requirements that we need to be able to submit to be allowed to use these devices for research, so that is already an issue that we are trying to undertake. In the meantime, these studies are being conducted in New Zealand, for example, and other studies overseas and there have been

some individual trials that do suggest there might be a potential benefit, but collectively across the board, that is not enough to say at this point they are useful for cessation, so there are other studies that refute this and have found no benefits, so you really need a number of trials to come out to show that they are helpful.

Gore Do you think it is likely that this will be studied in the United States or is there is some congressional or FDA pushback?

Fucito We are working on that right now. I am part of a nicotine research society and we are trying to work with the FDA to deal with this issue. One of the issues that we have is the supply to the medication for example and when you try to study a new investigational medication, you need to be able to submit to the FDA everything that went into that medication, so that the FDA understands what all those chemicals are and what all the ingredients in this medication are. We would be required to do that for these products and the unfortunate thing is that manufacturers are not releasing that information to us, so we are sort of in the catch 22 position right now where we want to be studying them and the current requirement to be able to study them are presenting a challenge.

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Dr. Lisa Fucito is Assistant Professor of Psychiatry and Director of the Tobacco Treatment Service at Smilow Cancer Hospital. We invite you to share your questions and comments, you can send them to canceranswers@yale.edu or you can leave a voicemail message at 888-234-4YCC and as an additional resource, archived programs are available in both audio and written form at yalecancercenter.org. I am Bruce Barber hoping you will join us again next Sunday evening at 6:00 for another edition of Yale Cancer Center Answers here on WNPR, Connecticut's Public Media Source for news and ideas.