

Support for Yale Cancer Center Answers comes from AstraZeneca, now offering 3 FDA-approved therapies for different forms of lung cancer with more in the pipeline. When it comes to lung cancer treatment, one size does not fit all. Learn more at [astrazeneca-us.com](http://astrazeneca-us.com). Welcome to Yale Cancer Answers with doctors Anees Chagpar and Steven Gore. I am Bruce Barber. Yale Cancer Answers features the latest information on cancer care by welcoming oncologists and specialists who are on the forefront of the battle to fight cancer. This week, it is a conversation about smoking cessation with Dr. Steven Bernstein. Dr. Bernstein is a Professor of Epidemiology at Yale School of Medicine and Dr. Gore is a Professor of Internal Medicine and Hematology at Yale and Director of Hematologic Malignancies at Smilow Cancer Hospital.

Gore We do not get a lot of emergency docs on our show talking about cancer, and I realize cancer patients come to the ED, but that is not really what you are interested in, is it?

Bernstein It is true there are not a lot of emergency physicians who do tobacco control. I became interested in this many, many years ago when I started to work in emergency departments having first trained in internal medicine and actually hematology/oncology, and I was seeing a lot of the same diseases in the emergency department that I was seeing in the clinic – diseases related in part to tobacco use, including not only cancer but things like emphysema, pneumonia, heart disease, etc., but at that time, we were not doing anything about it. I thought there might be an opportunity there for me to help my patients by doing something about their tobacco use.

Gore Certainly anybody who is in medicine for many years now has recognized a lot of diseases that are immediately traceable to tobacco use, right?

Bernstein That is true, but there is this interesting paradox, as prevalent as tobacco use is and even though it is the number 1 killer in the United States, and at this point in most of the developing world too, it is not taught that much in medical school. Young doctors still do not seem quite as comfortable in managing tobacco use, smoking, tobacco dependence as they do other kinds of health behaviors or other kinds of diseases.

Gore And do you think that is an education question or do you think it is a little bit of resignation and acknowledging failure before you have even launched the first foray, what do you think is driving that?

Bernstein I think it is a little bit of all of the above. I think in part, we tend to focus on procedures and doing things, new medications, new surgeries, new diagnostic tests, those are exciting and some of them are quite effective. Historically, we have not done as well with things like counseling and behavioral change with our patients. We tend to think

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maybe that is the job of other kinds of health professionals, and in part it is

also framing. Until fairly recently we did not think of tobacco use as a chronic disease, so just the same way you would not throw in the towel if you are a patient with high blood pressure or diabetes that is not in good control, we should do the same thing with our smokers. If we try something and it does not work, it is okay, we will try something else and we will keep going.

Gore But the emergency department, you would not think of as a place that is going to take a primary role here, because for most patients an emergency visit in a one-off thing and we are discouraging patients from using the emergency department as their primary care clinic, right?

Bernstein That is true, and I do not think of it as a primary care intervention. I think of tobacco control or smoking cessation treatment as part of the continuum of care wherever it happens. In other words, anytime, anybody walks into a healthcare facility, somebody should ask them about tobacco use – if they are smoking, if they are using tobacco and offer an intervention. To me, the ED is no different. And by the way, many of our patients who come in are ready and prime for an intervention and that is what we call the teachable moment. If you are there with something like an asthma attack, it turns out that is a good time to talk to you about your tobacco. You are very receptive to an intervention at that time.

Gore How have you gone about implementing this-- is it screening or what kind of programs have been designed and put into place?

Bernstein We do a few things. In my clinical trials, we have people in the emergency department, research staff, who screen patients for smoking and then if they are eligible, we offer them various combinations of counseling called brief and motivational interviews as well as FDA-approved medications like nicotine patches and gum. We also encourage the providers – the doctors, the advance practice practitioners to do that kind of work as well even if the patient is not in a clinical trial. More of them are starting to do that. The other modality I do want to mention is the toll-free National Smokers Quit Line 1-800-QUIT NOW, it costs nothing, it is open 7 days a week, they have many different languages available and anybody can self-refer and use that as a terrific service.

Gore What happens when you call them?

Bernstein Somebody answers the phone. They are open at least 12 hours a day in every state. They will ask you about your tobacco use, which products you use, how often you smoke and then they will hook you up, warm transfer you to a counselor who will offer

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Gore I did not know about that, that is really impressive. Let's say I go to the ED as I had the pleasure of doing a few months ago and I am screened, I assumed

I probably was screened, I do not really remember, and I am a nonsmoker, never smoker, and one of your research staff comes in and gets me to agree to sign on. What happens next?

Bernstein We will assess how much you smoke, how many cigarettes per day, how often, when do you have your first cigarette after you wake up and we will use that to figure out how much nicotine patches and gum to give you, what strength. We will actually give you the first patch right in the ED. We will put it on your chest, we will give you the first piece of gum, we will refer you to the Smoker's Quit Line through our electronic medical record, and now we might even offer you a texting program. We have a new texting program run by the National Cancer Institute that pushes smoking cessation messages out to people's phones and we will also give you the phone number for the quit line as well.

Gore And how do you find out whether this intervention has been meaningful?

Bernstein We call patients up at 1 month, in 3 months and sometimes 12 months to see how they are doing. Depending on the study we are doing, if they tell us down the road that they are smoke free, we ask them to come back to the hospital and we measure the amount of carbon monoxide in their breath. We use that as a measure of whether they are smoking or not.

Gore And how long has this been going on for these kinds of studies?

Bernstein I have been doing this coming on 20 years now.

Gore And how effective has it been?

Bernstein It works. We published the first successful trial of tobacco dependence about 3 or 4 years ago now. We had a confirmed quit rate of about 12% at 3 months out compared to about 5% in the control arm.

Gore And the control arm is people who are not getting the intervention?

Bernstein Yes, that is correct. Everybody got a brochure, they just got a smoking cessation brochure.

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Gore I see. So the computer decides if you are just going to get a brochure to tell you to stop smoking, as opposed to an active intervention?

Bernstein Correct.

Gore The people who are having an active intervention are doing better, although I guess I would say 12% is still kind of disappointing.

Bernstein Again, it is a matter of framing. You can look it at as disappointing. The other way to think of the results is for every 14 people who would get my intervention, we could make one of them into a non-smoker if they all got the intervention compared to if they did not all get the intervention. If you compare

that to other kinds of medical interventions we do that cost a whole lot more money, this is about as cheap and about as cost effective as it gets.

Gore How does that compare to other approaches to cigarette counseling that have been studied that 12% is a good outcome?

Bernstein It is a pretty good outcome, especially at 3 months, especially for a 1-time intervention. Remember, we saw these people once and we sent them on their way and we did not follow up with them. We were not running a clinic or very intensive kind of group program where you come back 6 or 8 times.

Gore Do you recommend that they see their primary care doctor about this or a specific tobacco cessation specialist?

Bernstein I think for most people it is essential. In the study, we notified everybody's doctor that they were in the study, we encouraged them to follow up with their physicians for all kinds of reasons to continue the counseling, to continue the medication management and of course to let the doctor know as part of good continuity of care.

Gore I guess you really have to be able to maintain your motivation, right? Obviously the urge to smoke in somebody who is nicotine addicted is very strong and while you are sitting there with chest pain, it turns out not to be a heart attack, thank goodness, or an asthma attack, you get over it and you think about it, I really ought to quit these things.

Bernstein There are a lot of ways to counsel patients and give them things that are important to them and part of it is just to live longer and live healthier, part of it may be to enjoy their life with their partner, part of it may be to watch their kids or their grandkids

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grow up, part of it might be to make sure they are dancing at somebody's wedding, part of it might be so that they feel better on the job and they can go to work and not miss so many days and part of it is often expense, cigarettes cost about 10 dollars a pack, more or less, and if you are a pack-a-day smoker let us say, that adds up. That is a whole bunch of money over a year. Gore I seem to remember hearing something on the radio or in the New York Times about the percentage of smokers who really would like to stop and it is pretty high.

Bernstein Yes, well over half, probably 70-80%. So, there is a real gap between what people want to do and the services we offer them. My work in the emergency department is just one attempt to try to close that gap.

Gore I know in my practice, the medical record asks us if the patient is an active smoker and have we offered a smoking cessation program to them, and honestly, in my business of treating cancer, even though of course stopping smoking is important, it is just not the first thing on my plate as a provider for my patients.

Bernstein That is often the case, Steve, and you are not alone. In fact, I am also part of a new program at our cancer center to try to improve the treatment of tobacco use for cancer patients who smoke, and this is part of an NCI initiative at this time.

Gore The National Cancer Institute.

Bernstein National Cancer Institute, thank you.

Gore That is really interesting because I happen to have a primary care doctor here in the New Haven area who I think is really superb and I had one in Maryland also before I moved up here who was quite good and I have to say that I so respect how attentive these guys have been to health maintenance in terms of making sure my vaccines are up-to-date and encouraging me to get the shingles vaccine even though I do not particularly want it and all of this stuff, and first of all, I am a physician so I should know better, but it is helpful to have somebody with a bit of a power relationship who has got your back, really caring about you. I give these guys a lot of credit.

Bernstein I think there is no substitute for an excellent primary care physician who excels at health maintenance. I think we should all have one.

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Gore What about obesity? I mean, obesity is a huge problem in the community, in all communities, right? In some ways it is kind of similar to smoking is it not?

Bernstein It is and it is not. It is very challenging. As you know, the prevalence of obesity has been skyrocketing in this country for many years – the reasons are many and complex. The challenge is this, nobody has to smoke just like nobody has to drink or use drugs, but it turns out everybody has to eat. So, some of the strategies that we need to use to manage weight control and diet and physical activity are a bit different from the way we would manage the use of substances like tobacco or alcohol or other things.

Gore But if somebody is coming in with symptoms that might be referable to let us say, rule out a heart attack or hypertension or sleep apnea or something and the person is obese, is that not also a teachable moment?

Bernstein Yes, you bet it is. In fact, now that you brought it up, one of my mentees in emergency medicine, one of the young doctors working with me is interested in obesity screening and interventions in the emergency department. So, at some point, we hope to have some work published in that area as well.

Gore Believe me, I personally know how difficult that nut is to crack, I am just thinking about again the opportunity of, and I even wonder again in primary care, when somebody is chronically obese, I think it is a lot of pressure on the physician to not talk about the obesity every time because at some point while

the person has not lost weight and now we are just managing a chronic problem, but in some ways that is really sad.

Bernstein It is tough because managing these issues to some extent goes beyond the role of what any one physician or healthcare practice can do. Many people who smoke, many people who are overweight come from underserved areas medically, underserved areas in economically challenged situations and they live in environments that are conducive to smoking and drinking and eating the wrong kinds of foods. So, there are very powerful environmental forces at play in causing the epidemic of obesity as well as tobacco use.

Gore This is a fascinating and terribly important topic. Right now, we are going to take a short break for a medical minute. Please stay tuned to learn more about tobacco cessation with Dr. Steven Bernstein.

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This is a medical minute about head and neck cancer. Although the percentage of oral and head and neck cancer patients in the United States is only about 5% of all diagnosed cancers, there are challenging side effects associated with these types of cancer and their treatment. Clinical trials are currently underway to test innovative new treatments for head and neck cancers, and in many cases, less radical surgeries are able to preserve nerves, arteries and muscles in the neck, enabling the patients to move, speak, breathe and eat normally after surgery. More information is available at [YaleCancerCenter.org](http://YaleCancerCenter.org). You are listening to Connecticut Public Radio.

Gore Welcome back to Yale Cancer Answers. This is Dr. Steven Gore and I am joined tonight by my guest Dr. Steven Bernstein, and we have been discussing tobacco cessation. Steve, before the break, you were talking about some of the really wonderful research you have done in using the emergency department as kind of a stop-sign or an opportunity to identify smokers and potentially initiate a smoking cessation program or at least make them aware of that and I think it is a great idea, and you mentioned that the interventions tend to be nicotine patches and gum, I find a lot of patients say they have tried gum, tried the patch and it never works, what other modalities are available for patients, and I know some people take drugs right?

Bernstein There are actually 7 medicines approved by the FDA, Food and Drug Administration, to treat nicotine dependence if you want to use the fancy name for it. Five of them are different kinds of nicotine patch, gum, lozenge, nasal spray and inhaler. There is bupropion or Zyban which was initially developed for depression but also works for tobacco treatment, and there is varenicline or Chantix which is a very interesting drug that actually blocks the receptor in the

brain where nicotine binds, and all of these work. I would also add that when someone says that they tried the patch or they tried the gum and it did not work, they are telling the truth, but if you dig a little bit deeper what we now know is they were probably under-dosed or they did not use the medication for long enough. We now know that combination therapy of patch and gum together for example tends to be more effective than using either alone.

Gore Do you think most primary care physicians are trained well enough to know this and it does not have to be in an in-depth way, but to have the basics of, instead of just looking in the book and writing for a patch?

Bernstein No, I do not, unfortunately. I think most still use one drug at a time for 4 weeks, 6 weeks, 8 weeks and something like that and then kind of throw in the towel, and I think we collectively need to do a better job in healthcare about educating our colleagues about how to best use these medicines. Nothing is a magic bullet certainly, but they really are pretty good if you use them long enough and aggressively enough.

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Gore Is there a particular specialty now that is dealing with addiction in general or tobacco cessation or is it a subspecialty?

Bernstein It is evolving. Historically, this has been the domain of primary care doctors, typically internists, family physicians, but certainly OB/GYN physicians and subspecialty physicians can do it too. Psychiatrists have always been involved in addiction, it is a subspecialty within psychiatry, but there is a new subspecialty of addiction medicine that now has a track open to emergency physicians and other kinds of providers as well with its own credentialing board too.

Gore I can imagine there has got to be overlap conceptually in terms of tobacco addiction and narcotic addiction or any other behavioral addiction, I have to assume that there are similar drivers even though nicotine by itself is an addictive substance?

Bernstein Absolutely true, and there are strong genetic markers for all of these and people who use one substance often use another, that is absolutely right.

Gore Fascinating. What about e-cigarettes, I get asked a lot about them, my people who cut my hair all use them, which is good because I would not be able to go there if they were smoking, but I kind of get sad when I see them using nicotine. Good thing, bad thing?

Bernstein I would probably avoid words like good and bad when talking about e-cigarettes. It turns out it is a complicated business and the science of this is really an evolution and developing quickly. I will give you my thumbnail sense of e-cigarettes. They will probably help at the front end some young people become tobacco users, users of nicotine products, at the backend, they will

probably help some confirmed smokers quit. I think they are going to do both and we have some early evidence to suggest that that is what is going on.

Gore Is there anything known about whether the chronic use of e-cigarettes, assuming it is not laced with anything else, is harmful to patient's health?

Bernstein They have not been around long enough yet to say that definitively. In other words, we do not have people who have been using e-cigarettes for 20, 30 or 40 years the way we did with tobacco when the first reports of cancers and so forth associated with tobacco came out in the 1950s. That said, almost certainly e-cigarettes are safer than smoking tobacco and burning tobacco. I think it would be really shortsighted at this point to deny that they are safer. So, if you take a harm reduction approach to nicotine use, in

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other words, smoking cigarettes is the worst thing you could do, using e-cigarettes is probably almost certainly safer, and then not using anything at all of course, total abstinence, is the safest. I think e-cigarettes are somewhere in the middle of that.

Gore I mean, the main harm of nicotine really is the fact that it is addictive, right? The nicotine per se is not particularly harmful for many patients. Am I wrong about that?

Bernstein No you are right. That is an important point. Let us be clear. Nicotine does not cause cancer, does not cause heart attacks, does not cause strokes, it is the only substance in tobacco as far we know that makes you addicted. That is what hooks your brain on tobacco products and the cancers and the disease and everything else comes from all the other compounds and chemicals that are in the cigarettes.

Gore Right, and in the e-cigarettes, I suppose it is packed in some kind of solution and stuff, but what do we know about those chemicals?

Bernstein We know that there are things in the product that help the person inhale that are put in the cannister along with the nicotine, but almost no carcinogens are in these cartridges. There are a couple of other organic compounds, and their health effects when you breathe them in the lungs, we are still working on that, but are less likely to cause cancer, heart attack or stroke compared to cigarettes, almost certainly safer.

Gore What is known about the carcinogenic potential and other health effects of marijuana smoke?

Bernstein Again, hard to know. It is similar to cigarettes in that you are taking a leaf, an organic compound, you are burning it and you are inhaling the fumes. So, you are getting some carcinogens, you are certainly getting the carbon monoxide that happened from combustion of burning organic matter. But because people who smoke marijuana tend to use much less of the product than

people who smoke cigarettes, the actual dose that you are getting of these things is almost certainly a lot less as well.

Gore Although some people who marijuana are also smoking cigarettes.

Bernstein There is dual use, it is quite common and again makes it a little more challenging to study marijuana use in isolation, that is right.

Gore And I guess the states that sell recreational marijuana include both combustible and non-combustible versions?

Bernstein They do. Edibles are quite popular as well, especially for people who are not confirmed marijuana smokers. An interesting side note about that, about dual use, in my own

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studies, I mentioned before that we measure carbon monoxide in a person's breath as a way of seeing if they are still smoking cigarettes. It turns out we have had to tell our patients the day before they come in, look do not smoke any marijuana because it is going to mess up our reading. More often than not, they say okay, doc thanks for telling me.

Gore And is the carbon monoxide harmful?

Bernstein Yes. It does increase, it can cause constriction of blood vessels that may increase risk of cardiovascular and cerebrovascular disease, stroke as well.

Gore What kind of volume are you dealing in the emergency department in terms of smoking cessation?

Bernstein It depends how you measure. In my clinical trials, we typically enroll about 1000 people at a time over the course of let us say 2 years, 1-1/2 to 2 years, but we treat 1000s of smokers a year. We treat about 100,000 adults now in our main emergency department and if even 20% of them smoke, it is a conservative estimate, we probably have about 20,000 smokers a year.

Gore 20,000 former smokers?

Bernstein No, no 20,000 smokers who come visit our ED will get some fraction of those in our clinical trials or just treat them in general.

Gore Right. And if you were to treat all 20,000 and you had a hit rate of 10%, that would be at least 2000 people you have rendered tobacco free.

Bernstein Correct. But when you sum that over the entire population of the US, we have about 40 million smokers in this country. It turns out we still have a lot of work we can do to help make the country tobacco free.

Gore Is the incidence of smoking decreasing these days or is it on the raise again?

Bernstein The incidence of smoking is going down. It is a little over 15% now for the entire adult population of the US and it is even down among youth, which is good news. What is exploding among kids though is the use of e-cigarettes. Interestingly now, kids are more likely to use e-products than regular cigarettes. So, we need to keep an eye on that.

Gore They use a lot of e-everything it seems.

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Bernstein Yes they do.

Gore I do not know if that is part of it or not, but you know, I can imagine that for kids it seems like it is harmless right?

Bernstein I think it is perceived as both harmless and cool, and that is always a seductive combination to young people.

Gore Right and then there are flavors like bubble gum and other attractive flavors?

Bernstein There is no question that the companies that make these products are marketing to youth, I think that is an open secret. In fact, we know that the tobacco companies are buying e-cigarette companies so they clearly see a huge market for the future for these things.

Gore How is that getting by the regulatory agencies when Joe Camel was outlawed about 20 years ago probably?

Bernstein As you know the Food and Drug Administration, the FDA, now does have the authority to regulate cigarettes to some extent and also the e-products, the e-cigarettes, and they are taking a look at e-cigarettes during the process of formulating rules, they have been very, very, very slow to do that, I think in part because of concerns about potential litigation pushback from the industry.

Gore But we lived through that for 30 years or more and it seems like regulation and government finally got the better hand with the Tobacco Settlement.

Bernstein They did. That was a huge deal, that was really a landmark settlement, the Tobacco Settlement, those dollars unfortunately are almost all used at this point, they absolutely had an impact, no question about it and we will see what will happen with the e-products as well, that story is still being written.

Gore Yeah. It is amazing to think that after all of that people are still afraid of the tobacco industry, legislators or regulators.

Bernstein Not without reason, they still have a lot of clout actually in some parts of the country.

Gore Have any of your techniques been adopted outside of US?

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Bernstein Yes. We are actually in touch with a number of folks in the Middle East, in Canada. I have had conversation with folks in Australia, so there is some interest in other parts of the world in doing this as well.

Gore I have been impressed over the last 20 years or so that I have been noticing earlier you would go to Europe, in some very westernized country – smoking would just be intolerable compared to what we were used to, even back in the 1990s here, right? France, Germany, Spain and it's dropped off a lot, at least public smoking. You should not be able to find a no-smoking part of a restaurant, now there are restaurants that are nonsmoking.

Bernstein Some countries were a little bit later to tobacco control than others. Western Europe is doing pretty well, to some extent some countries in Asia and the Middle East are the last big, big markets for tobacco products and even those governments are starting to come around. I should mention some years ago, almost every country signed onto the Framework Convention for Tobacco Control sponsored by the World Health Organization, the first international treaty devoted exclusively to a healthcare issue, almost every country has signed onto the idea of restricting the use and sale of tobacco products.

Gore What about the pediatric emergency department? Is this something that is active there or is it really not yet an issue at the age you see kids in the ED?

Bernstein Still more in development. I actually have a good colleague in Cincinnati who has done the most work on this in Cincinnati Children's Hospital. The opportunities in the pediatric ED are twofold – one is to talk to adolescents obviously, teenagers, about their tobacco use, their e-cigarette use, etc., and the other is to talk to the parents because kids who live with smokers are more likely to get asthma and colds and so forth. So, there is some work in that regard, I would say the main action in pediatric smoking, e-smoking, is what is called tobacco 21 and that is a national movement to raise the age of sale of tobacco products to 21 across the country. Many states are now doing that.

Dr. Steven Bernstein is Professor of Epidemiology at Yale School of Medicine. If you have questions, the address is [canceranswers@yale.edu](mailto:canceranswers@yale.edu) and past editions of the program are available in audio and written form at [YaleCancerCenter.org](http://YaleCancerCenter.org). I am Bruce Barber, reminding you to tune in each week to learn more about the fight against cancer here on Connecticut public radio.