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# SMOKING CESSATION & HIV: WHAT'S THE CONNECTION?

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CLINICAL EDUCATION INITIATIVE
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**Smoking Cessation & HIV: What's the Connection?**

**[video transcript]**

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Dr. Holly Murphy is a Clinical Pharmacist at Erie County Medical Center. She obtained her doctor of pharmacy degree from Sullivan University College of Pharmacy in 2013, and completed two years of postgraduate residency training in HIV pharmacotherapy. She's a board certified pharmacotherapy specialist and a practicing HIV pharmacist for the American Academy of HIV medicine. Dr. Murphy is a clinical preceptor for various disciplines in the medical field, and routinely provides education in the community for pharmacists, physicians and other providers on HIV and STI can thank you, Dr. Murphy for joining us today. And I'll now turn it over to you. Thank you.

00:52
So hi, everybody, my name is Holly. Um, I am the HIV specialist at Erie County Medical Center and today we're gonna be talking about smoking cessation, and HIV and how it pertains to our patients. Today, I don't have any financial relationships to disclose, which is unfortunate, right. But we're gonna go ahead and dive into our learning objectives. So today our objectives are, one cite the need of nicotine dependence, screening and persons living with HIV. To review the negative effects nicotine has on persons living with HIV. Three, explain how to screen nicotine dependence and assess readiness to quit. And four provide examples of smoking cessation interventions to help assist our patients. So smoking, why does it matter? Well, as we're all probably well, really well familiar with smoking is the leading cause of preventable preventative death in the United States. And this remains true. Even though a lot of the data that we have was from prior to COVID. It's still true today, cigarette smoking is our number one or our number one and number two risk factor for morbidity and mortality. Second, sometimes due to hypertension, they kind of like trade places. But cigarette smoking is still remains our most preventable cause of death. Smoking leads to disability and disease, it causes more deaths each year, then the following causes combined, and that's HIV, illicit drug use alcohol use motor vehicle injuries and firearm related incidents. And that's a lot of deaths and those individual categories. But we're talking about one risk factor, making people at the highest risk of death than all of those combined. So smoking is a really, really important area for us to intervene in our patient population, because, you know, it's going to help prevent a lot of deaths. Number two, cause it causes cancer, heart disease, stroke, lung diseases, diabetes, and COPD, which includes emphysema and chronic bronchitis. It also increases risk for tuberculosis, different eye diseases, and problems of the immune system. And then, last but not least, is known as an unknown cause of erectile dysfunction in males, and especially in our patient population, persons living with HIV. You know, this is a very big concern for a lot of our patients. So who is smoking? Overall, what we're seeing is that cigarette smoking is actually down, the numbers have been decreasing since before 2018. But here and 2023, they're the lowest rates that we've seen. But we still have certain groups of our population that are higher smokers than others. And you see more rates of smoking and individuals who have a lower education level who live below the poverty level, who are male, young adults, mainly located in the south in the Midwest,

and, and the lead, that are identify as lesbian, gay or bisexual. So there are certain patient populations that we specifically deal with in our practices as HIV care providers that, you know, we see every single day, I can tell you that the majority of my patient population fall into at least one of these categories. So smoking is a very common problem that we're seeing in our patient population. So when we're talking about HIV, we have our first question, what is the rate of smoking and HIV positive persons compared to HIV negative persons? Is it a no difference? b two times the rate C five times the rate, D 10 times the rate, or E half times the rate of HIV positive persons are less likely to smoke

05:05
Okay,

05:06
so looks like we got a fair number of responses. The answer is B two times the rate.

05:18
So this is

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one of the stop smoking advertisements that we have seen specifically here in New York. And it's HIV smokers lose more years of life from smoking than from HIV. Those living with HIV smoke at a rate of about two times greater than the general population. And it's assumed that about 30 to 40% of individuals living with HIV actually smoke. There are some studies out there that say that that rate is actually higher at about 70%. So we can guess that at least, you know, 40%, or 70% of our patient population are going to be smoking and some form. HIV positive smokers are less likely or more likely to be depressed, they have worse quality of life and lower antiretroviral adherence compared to HIV positive people who do not smoke. And there are a lot of conflicting studies that look at smoking as it relates to medication adherence, some people say that doesn't have a very strong impact on medication adherence, but then other studies reinforce that it does. As a clinical pharmacist, in my opinion, anything that could potentially cause an impact to my patients, adherence is a concern of mine. So because there have been some studies out there that have associated smoking with, you know, decreased adherence to their antiretrovirals, it becomes a problem for me. So I want to make sure that my patients are, you know, the most adherence as possible because ultimately, if they're not taking their antiretrovirals, then they could eventually develop resistance to these medications. Cigarette smoking has a negative effect on a person's ability to take their meds. So ultimately, it can also cause their viral load to increase and like I said, lead to medication resistance, which we do not want that to happen. If you have HIV, non HIV related mortality is more than five times higher among smokers than among never smokers. And people living with HIV smoking increases the risk of bacterial pneumonia, COPD, heart disease, and decreased bone mineral density. And smokers living with HIV who are adherent to antiretroviral therapy are six to 13 times more likely to die of lung cancer than from AIDS related causes. Smokers with HIV are more likely than non smokers with HIV to develop all of these different complications associated with smoking. So lung cancer, head and neck cancer, cervical and annual cancers, bacterial pneumonia, PCP, COPD, heart disease, Thrush, they have a there, there are some studies out there that say that

they have a poor response to antiretroviral therapy, they have a greater chance of developing a life threatening illness that leads to an A diagnosis. They have a shorter light lifespan than people living with HIV who do not smoke. And that has been studied time and time again, that shows that they continuously lose years of life when they do smoke, in addition to having HIV. So when we're talking about cardiovascular risks, because that's something that's always associated with smoking and smoking cessation, it's also being associated with HIV, especially today, when we're using antiretrovirals that also may potentially cause an increase of different cardiovascular complications. So it's something that we're really looking at in the HIV community. When it comes to smoking previously untreated and asymptomatic HIV patients, we have this study, it's that came out where they looked at people who are not treated, and they're going to start on therapy, and they were started on a protease inhibitor. And what they found was that those individuals that were on the protease inhibitor actually had higher rates of MI and metabolic alterations, which is to be expected because we know as a drug class protease inhibitors cause metabolic abnormalities. So when we're talking about individuals that were smoking in this group, they found that they actually had a higher rate of cardiovascular events. And that makes a lot of sense, because you're not only putting people on a medication that could cause metabolic abnormalities, but you're also adding a very large risk factor by them smoking, you know, every day, and that increases their risk for cardiovascular events like MI. And this is actually a snapshot from the DEA DEA study. It was published in 2011. And they were actually looking at the AR t versus mi risk. And what you can see here is that the incidence of you know, these different complications, whether it's mi or cardiovascular disease, they increase with Smoking. But when individuals stopped smoking, they gradually declined declined over the course of three years. And they only had a snapshot of three years worth of data. They didn't have any more than that. But we can extrapolate from what we see from the snapshot that as the years out from when these individuals stopped smoking, and increased, the lower the risk is going to be, as far as you know, these cardiovascular complications. So the sooner that we can get individuals to stop smoking, the better their outcomes are going to be. The only one that did not see that decrease in complications over time was mortality. And the investigators of the study actually assumed because it didn't mimic any of the other studies that have been done on this. But the investigators actually said that they thought that it was because individuals who stopped smoking had actually stopped smoking too late and their their progress. So they're the smoke is a stopping smoking didn't really stop like the progression of their diseases. So they were either given like some type of serious diagnosis, and they decided to stop smoking because of that diagnosis, or it just wasn't suiting up for them to prevent any of these complications. So that's just why that one is a little bit different than the others. All right. People living with HIV are at an increased risk for bacteria pneumonia risk. As people living with HIV are aging, COPD, cancers, cardiovascular, renal and liver diseases are an emerging as additional risk factors for bacterial pneumonia. So our patient population as a whole is is getting older. And that means that all of these other comorbidities are putting them also at increased risk for bacterial pneumonias. And this is concerning because people that are living with HIV are at risk for these multi drug resistant organisms that cause bacterial pneumonia. And they can occur at any stage of HIV infection. But usually we're going to see this and are individuals that are AIDS defined, particularly if they're at the lower end of the CD four counts spectrum. Cigarette smoking is a major risk factor for all cause pneumonia. So this also adds to the risk. And it is associated with a two fold increase in mortality even in well controlled HIV. So

individuals even if they have their viral load suppressed, they're still going to be at increased risk. Regardless, as long as they're continuing to smoke. Current Smokers are up to three times more likely to develop pneumonia than never smokers. And this is just showing you the charts of lung cancer risk. So we're jumping over from bacterial pneumonia and to lung cancers. So the risk of lung cancer is increased by the presence of HIV through mechanisms likely involving chronic inflammation and a mutual immunomodulation and other infections. Lung cancer is shown to be increased in in anybody with HIV, regardless of whether or not they smoke, they're not really sure why. But these are some of the potential causes. And lung cancer is the leading cause of cancer death among individuals living with HIV who are also on antiretrovirals and studies are showing that screening with low dose CT scans for people aged 55 and older, who are current or former former heavy smokers reduces lung cancer deaths. But that's not something that we see all the time. They're also saying that people who are current smokers, the earlier that we start screening these individuals, the obviously the improved outcomes we're going to see. So we see lung cancer as a risk across the board. And individuals living with HIV by adding smoking on top of it obviously increases their risk. So these are some of the anti smoking campaigns that we see. One of them is don't burn through your meds. And this one down here on the bottom right, that has the man showing his neck. HIV didn't cause the clogged artery in my neck smoking did. And these are pretty like powerful like in your face, anti smoking campaigns that have been out there. And I know that they're not the only ones. So we've gotten pretty, pretty creative when it comes to talking to patients about smoking and smoking cessation, and what kind of impacts that we can see as far as like their their comorbidity complications and their mortality risks. And if you're really interested in seeing, you know, some of the more creative ones that are out there, just do a quick Google search, you'll see all sorts of stuff. But they've gotten really, really powerful with their messaging. Tobacco use disorder is a brain disease, as you can see here, the effects of nicotine on dopamine levels that that first taste of nicotine shoots the dopamine And levels up really high, and then it gradually declined. And that that peak is why people keep, you know, continuing to smoke because it makes them feel better.

15:09

Many adults, cigarette smokers actually do want to quit and 2015. They did some research. And they found that nearly seven and 10 adult cigarette smokers smokers wanted to stop smoking. And in 2018, more than half of the adult cigarette smoke smokers had actually made an attempt in the past year to stop smoking. And also more than seven out of out of every 100 people who tried to quit succeeded. So obviously, we have a lot of work that we can do to help our patients smoking is probably the one of the most challenging things that I have to talk to patients about because a lot of people don't succeed on the first try. And they get really, really disheartened about it, they get down on themselves. And they don't think that they can actually do it. And then some people just give up there, they say that they, you know, don't want to quit smoking because it didn't work for them before. And you know, they might as well just keep doing it. So it's something that, you know, is really important in our clinical practice every day. And this is just another graph that shows you that the majority of individuals who smoke are actually interested in quitting. And my personal experience, my my dad, he was a smoker for a very long time and it took him many many tries to stop smoking. But he never said that he you know, wanted to continue to smoke, I don't think that I've met very many patients who really cling to

smoking as something that they want to keep having in their lives. Most of the time, it's the opposite side where they want to stop and they know that it's bad for them. Um, when it comes to health benefits of quitting, this is something that I like to talk to patients about specifically, when we can see effects of stopping smoking within the first week, two to three, two weeks to three months after stopping smoking, your circulation improves, walking becomes a lot easier your lung function starts to increase one to nine months after stopping your lung cilia game gain normal function, you have the ability to clear your lungs of mucus a little bit a little bit more coughing, fatigue, shortness of breaths decrease. And that's the point where patients usually come in and they tell me that they can start to feel themselves you know, get better that they can have a noticeable difference of you know what it was like when they were still smoking to what it's like now that they've stopped one year after stopping the excess risk of CHD decreases to half that of a continuing smoker. So we're already seeing our cardiovascular benefits at a year of stopping smoking, five years after they stopped smoking risk of stroke is reduced to that people who have never smoked, which is really, really huge. And then 10 years lung cancer death rate drops to half that of a continuing smoker, the risk of various cancers decrease. And then after 15 years, your cardiovascular health is similar to that of people who have never smoked. So we can help these patients live longer, healthier lives, if we can help them work through the habit of smoking and getting them to stop. You know, adding insult to injury essentially, on their body. So tobacco use disorder is actually a two pronged disorder, it's behavioral and it's physiological. So the physiological aspect is where they get that increase in dopamine, it makes them feel better. And they have that addiction to nicotine where they just keep coming back, you know, to get more and more, because it makes them feel so good. And then we have behavioral where people are just like in the habit of it. And these are the people that wake up first thing in the morning and you know, with their coffee, they have a cigarette and it's just part of their daily life and it has been for X number of years. So in order to effectively you know, help these individuals, we have to you know, address both aspects of the disorder, we can't just focus on the behavioral aspect we or the physiological we have to do both. So when we're talking to patients about their about smoking cessation, we start by screening them with the five A's and that's ask, advise, assess, assist and arrange. So first is to ask about the tobacco use, how much are they you know, using every day, what kind of tobacco user they do they prefer, advise them, tell them, hey, you know, like, this is really bad for your health. You know, let's talk about smoking cessation. Let's encourage you to, you know, consider quitting smoking, assess readiness to make an A quick tent, a quit attempt attempt. Is the patient actually willing and ready to stop smoking? Are they at the point where they're like, no, like, let's I'm not ready for that or Yeah, you know, like, let's give it a shot. Got, and then assist with a quit attempt. So you know whether that means providing them encouragement, looking at pharmacologic options, getting them linked to a counselor, those sorts of things we can work on and then arrange follow up care, whether that's with the prescriber in the office or with, like I said, a counselor, however, that's going to be managed, making sure that that's in place for them. So readiness to quit a review, because there are different stages of individuals and where they're at on the readiness scale. So when we have people who are not quite ready to quit, we enhance the motivation, we keep doing the five R's. And then, if they say that they're ready to quit, that's when we began the behavioral counseling, we look into pharmacotherapy, and we still keep revisiting those five A's. And then we set a quit date. And then we have the recent quitter, the people who have just very recently, within the last six months stopped smoking, we

still continue the behavioral counseling the pharmacotherapy. And we really, really focus in on that relapse prevention and do whatever we can to help, you know, prevent them from smoking. And then the former tobacco users, those individuals who have stopped smoking more than six months ago, we continue the behavioral counseling and the rehab or relapse prevention. So when do you know the patient is ready to quit? Does the patient use tobacco? It's either yes or no. If they say yes, is you have to ask the patient just straight up, is the patient ready? Ready now to quit? If they say yes, then that's when you provide them treatment. If they say no, that's when you really, really encourage them to consider it. Just because there's so many health benefits to stop smoking, it's really important that we continue to talk to our patients about this, even if they get tired of hearing it from you. You know, you may say it at every visit, and they're like, do you really have to talk to me about this? Yes, we do. Because there's so many benefits to stopping smoking. If they used to use tobacco of some sort, again, we want to make sure that we're focusing in on that relapse prevention and encourage continue abstinence, you know, really talk to them about that, congratulate them for bread, provide them with positive reinforcement. I don't know about you, but I like it when my ego is stroked. So, you know, when patients hear Hey, you're doing like a really great job, I'm so proud of you, that really encourages them to continue doing that behavior. So when we're talking to patients about quitting, we really should focus in on a couple of key issues, we need to discuss their triggers for tobacco use. So talk to them about what situations lead to temptations to use tobacco. And this is a really important thing, because it gives them problem solving skills. And by giving them problem solving skills to figure out you know, what situations they find themselves in that put them at increased risk for using tobacco, that will help them you know, navigate those situations a little bit more effectively. So some people might be social smokers, some individuals might smoke during certain times of the day, maybe they find that they smoke more when they're more stressed about certain things. And maybe they have some life situations that are going on that caused them to, you know, start smoking again, or increase the amount that they do smoke. And that's why we talk to them about those those triggers. Um, and these are just examples of some routine situations that are associated with tobacco use very, very commonly. I like already use when drinking coffee, a lot of people wake up first thing in the morning and they smoke a cigarette with their coffee. Some people like to smoke when they drive in a car because driving and rush hour traffic is very stressful. So smoking a cigarette kind of like takes the edge off. When they're bored or stressed while watching TV. Socially, well, they're at the bar with friends, after meals during breaks at work while on the phone while with specific friends or family members who use tobacco. So there are lots of different influences on when people are using tobacco products. So if the patient is ready to quit, there's some things we can do to facilitate the quitting process. We have to discuss with them different methods of quitting, talk about the pros and cons of the available methods that are out there.

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You know, whether that's, you know, different pharmacotherapy options, just kind of very similar to prescribing antiretrovirals for these patients. We have to find the right combination of therapy that's going to work for them the right pharmacologic agents, the right counselor, it's really going to be very patient centric. And then you know, it's it's really cool to have patients write down their reasons and motivations to quit like when my step when my when my dad stopped quitting, stop, quit stop smoking. He really wanted to do it for my myself and my siblings. We were his

big motivation and, you know, he didn't want us to pick up his bad habits. So that was what encouraged him to smoke. And you would, you know, be surprised at what people come up with as their reasons for for smoking, but they're all very, very impactful for the individual patient. And then confidence in their ability to quit, a lot of people are very discouraged, they don't think that they can do it, because it's become such a part of their day to day life. They don't think that they can break that habit. But, you know, encouraging to you know, to do it, will will definitely help with that, making sure that they're feeling motivated and confident in their ability is important. Um, pharmacotherapy, we've seen in studies that two methods of pharmacotherapy use simultaneously are better than one. So you know, making sure patients have a nicotine patch, and some something else or, you know, maybe they prefer a nicotine gum, and, you know, some some other agent to is better than one. And that's an important rule to remember. And then the importance of behavioral counseling as well. It's always important that we set a quit date. So that way, they have some guideline as to when they should be stopping and starting this. That way, they can kind of wrap themselves up before that quit data approaches, and then recommend a tobacco use log, I kind of look at this as very similar to my diabetic patients, and you know, their their blood glucose log and our food logs, put down a tobacco use log, so that way they can write down, you know, when they when they used tobacco last or, you know, when they have a high craving or something along those lines, and then review behavioral and cognitive coping strategies. All right, so this is from the US Preventive task, the US Preventive Services Task Force, and it's their behavioral interventions. So it says content of effective behavioral interventions for tobacco cessation. Effective counseling interventions provide social support, and training and practical problem solving skills, and training and problem solving skills includes helping persons who smoke to recognize situations that increase their risk for smoking, develop coping skills to overcome common barriers to quitting and develop a plan to quit. Again, I mentioned earlier that providing patients with problem solving skills are different techniques to solve some of these situations that they find themselves in, that may encourage them to smoke. It's very similar to any other habits. So maybe you have somebody who has issues with, you know, eating food, over eating and things like that, and they're gaining weight, developing them problem solving skills, to you know, sort themselves out in situations that encourage them to do the activity is very, very important. And it actually gives them a lot of motivation and encouragement, you know, to themselves to say, hey, yeah, you know what, I figured this out on my own, and I can go ahead and, you know, really do this. And then also providing basic information about smoking and successful quitting should also be provided, you would be really, you know, impressed what it can do to a patient to just have the very basic information gone over again, I see this all the time in in, you know, HIV 101, where people that have been in treatment for years and years and years don't understand what a CD four count is, or what a viral load is. And just educating them on those terms, and making sure that they understand what they mean is so impactful. The same kind of thing applies here, a lot of people don't understand what smoking actually does to the body and why it's so important to stop. So talking to them about that kind of information is really good to helping push them towards smoking cessation. And then complementary practices that improve cessation rates include motivational interviewing, which we should all be doing a practice anyway, because it has such good outcomes, and then assessing readiness to change at every visit, and offer more in intensive counseling or referrals if needed. So we have the different stages of change in this model here. So we have pre contemplation, contemplation, preparation, action, maintenance, and

termination. And the pre contemplation stage is when the patient has no intention of quitting smoking. They're not quite there yet. And then we have contemplation, which is the patient is aware that smoking is a problem. They're thinking of quitting within the next six months, but they're not quite there yet. They're just thinking about it. And then we have preparation, which is where the patient has an intention to quit smoking within the next 30 days. So they actually are starting to take the next steps and get a plan together. And then we have action which is a very recently changed behavior, so the patient has already stopped quitting less than six months ago. The maintenance phase is way or they have stopped smoking for at least six months. So they've already changed the behavior. And then termination is where the patient has completely quit smoking and has no temptation to smoke again. So these are the different stages of change. And you can slot your patients into each one and use different techniques to help them towards smoking cessation cessation, depending on where they're at. So, different techniques to use based on the stage of change, we have pre contemplation. So this is where you're going to really listen to the patient and still hope and provide choices, let them know what's available to them. As far as you know, pharmacologic agents, different steps that you can take to help them stop smoking, what options do they have available to them? contemplation, that's where you really have to get, you know, good at convincing these people to take the next step. So work on resolving the ambivalence that they have, explore any type of issues or barriers that they might bring up and examine the consequences of what happens if they keep smoking, you know, five to 10 to 15 years from now, and really provide them with that extra information as to you know, why smoking is so detrimental on their health. And the preparation phase. This is where you want to assess the strength and level of the commitment, help them determine the best course of action, and match their motivation with the change strategy. So you want to make sure that where they're at motivation wise kind of aligns with the plans that you put into place, and then prepare them to do what will be required to do that's essentially what you need to do in the preparation phase. So you got to get them ready, hype them up a bit, have a plan in place, set your quit date, that kind of thing. And then the action phase, remember that relapse is always possible. But make sure that you're helping reaffirm decisions and focus on their successes, identifying new strategies to prevent relapse, because that's a really big concern, especially within these first six months. And then maintenance phase. That's where you teach change, and you help them what to you tell them what what their what they should start to expect, and then help them identify strategies to avoid relapse, because there's always going to be that risk for patients to relapse. I keep going back to my data as an example, he stopped smoking for several years at one point, but then he ultimately relapsed and went back to smoking. And, you know, they say that third time's the charm, right, but it ended up being like, 15 time's the charm in his case, but he has been smoke free for many more years now. And, you know, just providing patients with that reassurance, you know, maybe they did have a cigarette, and they feel really, really sad about it. You know, tell them, hey, you know, that was one mess up, you can still keep doing this. And really encourage them if they do relapse. If you do have a patient that does relapse, you go ahead and you recycle all the steps. So go back and start over with the Stages of Change just to make sure that they're still at the same point and willingness to stop smoking. And again, like I said, just continue to encourage them and provide them with positive feedback. A lot of people like to like to hear that from especially from us as their health care providers that they're doing a good job and that they can keep doing this. So we're gonna jump into tobacco cessation treatments. So this is the next question for you.

What is the recommendation for treatment for tobacco cessation? Is it a counseling only B pharmacotherapy only C counseling and pharmacotherapy with one medication or D counseling and pharmacotherapy with combination pharmacotherapy at least two medications?

34:13
Hey

34:25
Okay, so the answer is D counseling and pharmacotherapy with combination pharmacotherapy at least two medications. Okay, so this is just a snapshot from the clinical practice guideline from 2008. It's the most recent update that we have from the Department of Health and Human Services. It says clinicians should encourage all patients attempting to quit to use effective medications for tobacco dependence treatment, except where contraindicated or for specific populations, for which there is insufficient evidence of effectiveness and this in Oops pregnant women, smokeless tobacco users, light smokers and adolescents. Medication significantly improved success rates, which we'll talk about when we talk about the individual medications itself. But the use of pharmacotherapy in smoking cessation is not something that patients should be ashamed of relying on. I know, I have a lot of patients who think that they have to quit cold turkey and not use anything to help them. But our medications that we have available are actually really, really helpful and provide much higher success rates then people who end up quitting without using any pharmacologic agents. So our first line pharmacotherapy is our nicotine replacement therapies are in our tea. Those are the nicotine patch, gum, lozenge, inhaler, and nasal spray. And based on my experience, the patch gum and lodge lozenge are usually the ones that we see the most of. There's also Bupropion and varenicline, which we'll talk about individually next. Alright, so nicotine replacement therapies, the nicotine patch is the first one over here on the left hand side. Its advantages are that it actually offers steady state nicotine levels that are achieved throughout the day, so the levels are consistent, and it's available over the counter. Since a single patch is applied to the skin, once daily, it offers a better adherence profile compared to multi dose medications. So patients do a lot better on this. An estimated 23% of patients are abstinent when using the nicotine patch. So that's a pretty pretty good abstinence rate when it comes to our replacement therapies. And it comes in different formulations. Some people are really sensitive to like the adhesives. So if somebody can't tolerate one specific brand, then they can go and try a different brand as well. One of the most common ones is the NicoDerm patches, all of the patches are offered and three different steps, you have the 21 milligram per day, a 14 milligram per day and a seven milligram per day. And the initial treatment dose and duration really is going to depend on the amount of cigarette smoke daily. So for example, if you have a heavier smoker, that somebody that smokes, you know more than 10 cigarettes per day, they're going to start with a six week regimen of step one, followed by Step Two for two weeks and then step three for an additional two weeks. For lighter smokers, you can actually start at step two, instead of step one. So it really is going to be very patient dependent and how much they're smoking, depending on what patch you're going to start with. Another thing is advantage of it is that it's very easy to conceal. There's very few, like I said, compliance issues. Disadvantages, patients don't really titrate their dose. So you can't go and just say hey, like I need half of a patch today, it doesn't work like that. But you can adjust what patch the patients on if you really need to, again, we pick the patches based on how

many cigarettes a patient is smoking per day. So it may not be like a one size fits all model, maybe somebody does need a little bit higher dose because they're right there on the cusp. You can you can do that. But you can't really like half a dose to get them a little bit extra. And again, like I said, the adhesives are a concern, the nicotine gum, that one may satisfy oral craving, so maybe somebody has, you know something where they need to be chewing on gum, they need to have something in their mouth, because that's what they used to smoke cigarettes for was because they like that, that have that oral fixation with things. And then it may delay weight gain, which is really beneficial. A lot of patients who stopped smoking end up putting on weight because they replace their cigarettes with food. And that's not necessarily a better alternative. And then patients can titrate therapy to manage withdrawal symptoms. So if they need an extra piece of gum, they can go ahead and do that. Unlike the patch, which there's not really a way to do that with disadvantages gum chewing may not be socially acceptable, it may stick to dental work and dentures. Although the gum isn't as sticky as like regular chewing gum, it still has some potential. And then proper chewing technique is needed to minimize adverse effects. A lot of people just chomp on it just like regular chewing gum and that's not quite how this works you have to do the chew and park method. But I have had patients report that they do get some gum irritation when they do the chew and park methods. So, that is a counseling point. For these individuals. We have the nicotine lozenge which is also another one that I see sometimes not as commonly as the gum or the patch. Advantages The initial nasal or throat irritation can be bothersome may last Stuck to three weeks and this one is more of a concern than with the gum with the the your irritation. It has a higher dependence potential relative to the other nicotine replacement formulations. So a lot of times when patients start these, they end up being on them for much longer than the other ones. And then patients with chronic nasal disorders, or severe reactive airway disease should not use its disadvantages are that it caused a lot of Gi side effects, nausea, hiccups, heartburn, and those things can become bothersome. But honestly, I haven't had a whole lot of patients complain about that usually if they pick the laws and just because they prefer that method. You have to allow slow dissolution. So no chewing the lozenge which some people can get confused on. And you should not eat or drink for 15 minutes before a while using the lozenges that could impact it as well. The nicotine inhaler, honestly I've been a pharmacist for about 10 years, and I can say that I've only seen this maybe once or twice at most. I very rarely see this at all. Patients can easily titrate therapy to manage withdrawal symptoms with this and it mimics that hand to mouth ritual of smoking. So again, kind of like with lozenge or the gamot. You know, mimics or replaces that oral habit that they had some disadvantages to it. The initial throat or mouth irritation is usually within the first week. And cartridges should not be stored and conditions of high heat or very low heat. So depending on where you live, like New York, temperatures could be really low, especially if you leave these out in your car. And that could be problematic. And then patients with underlying Bronco spastic conditions should use with caution. And then the nicotine nasal spray can also be used to titrate to rapidly manage withdrawal symptoms, it's probably the fastest one. And it can also have some of that nasal or throat irritation as well that can last for a few weeks. And again, patients with chronic nasal disorders or severe reactive airway disease should not use.

42:14
And like I mentioned

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before combination, pharmacotherapy is going to be more beneficial for individuals and these are just some of the examples that are out there. As far as combinations are concerned. You can use the nicotine patch plus the nicotine gum, lozenges, lozenge, or nasal spray. And a lot of times what I see is the nicotine patch plus the gum or the lozenge. You can also use the nicotine patch plus an inhaler, or probably the most most common one that I see is a nicotine patch in addition to reappropriation or varenicline. So these combinations all doubled or tripled the quit rate and research studies. And a lot of times what I see in our patient population, especially with the recall of brand name for an UCLan is the nicotine patch and the Bupropion. So let's talk about these individual agents, the B program of the Verona CLIN the blue pro Breon inhibits the reuptake of norepinephrine and dopamine in areas of the brain that's responsible for addiction. So this lessens the desire to smoke. A lot of people stop having as many cravings and they just don't feel like it. And it reduces withdrawal symptoms. Another benefit of Bupropion is in our patient population, especially we have a lot of depression, as well. And Bupropion not only helps with smoking cessation, but it can also help with depression as well. So advantages, it's an oral formulation, it's given twice a day, and it's very easy for patients to use. And the brand name of this is i ban I will say and I don't know, like from a from a brand name like approval process, but a lot of times people who are started on Bupropion, the Wellbutrin formulation as well. One of the benefits of starting it is actually smoking cessation, and then as well, so I don't think it really actually honestly matters from like my clinical perspective, what formulation is used, but the one that has been approved as the SR version the Zai Bahn brand. Other advantages, other advantages, like I said, it can be beneficial for patients with coexisting depression. And usually we start our oral therapies before the quit date. So they're going to be on this for a little bit before they actually stopped smoking. There's no risk of nicotine toxicity if the patient does continue to smoke. So it's perfectly fine if they ultimately decide that they're not going to stop smoking or if they have trouble stop smoking, and we don't have to worry about that nicotine toxicity. Disadvantages are going to increase the seizure risk so it'd be appropriate on reduces to A seizure threshold, that's something to really take into consideration, especially with people who have a seizure history. And then it causes a lot of insomnia and dry mouth. Sometimes if the patient also has underlying underlying anxiety, it can cause rebound anxiety. So those are some things to take into consideration. And then we have for Nicklin, it's a partial nicotine receptor antagonist, it is way more effective than placebo. And it actually is possibly more effective than Bupropion. As you can see here, these are the graphs straight from the manufacturers website. The brand name is Chantix. And they had a higher rate of smoking abstinence, and individuals with underlying psychiatric disorders and individuals that did not have underlying psychiatric disorder so much higher than the other arms of the cohorts. And this was a study the any active study that was published in 2018. And they came out with this nice graph, showing varenicline versus placebo. And what they found, they did it over several years. And it was like a study done of like 250 patients. And they found that the individuals with the Verona clan on the in the Werner clan arm actually had higher rates of abstinence from smoking, then individuals that were on placebo. And as you can see, it's very, very significant, how much higher success that they had with this than individuals that didn't have anything.

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So the way that this works,

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it's also an oral formulation that's given twice a day, it's very easy to use, and you started before the quit date, you can actually use it up to a month before the last cigarette, the total duration of treatment is supposed to be 12 weeks, but you can actually increase it to 24 weeks if you really need to, and it's titratable. So the first couple of days, they're on a lower dose, that's one today. And then the next couple of days, they're on a lower dose That's twice a day. And then starting at weeks two, through the end of treatment, they're on a twice a day, one milligram dose. There are a couple of disadvantages to this. Number one is that it was part of a massive re drug recall the brand name was not that long ago, because they found an impurity and the drug. There is generic options available. But I still think patients are having issues getting it out on the market. It's only available in a generic generic formulation, the brand name has completely been stopped. So that may be a barrier of just getting it, it can cause a lot of nausea, which is another barrier. I do have patients that started on this that have said that they've had some issues with nausea after starting it. And then also it can cause aggravation of underlying mental health disorders, as well as suicidal ideation. So a lot of patients, you know, we have to talk to them about that, especially if they have underlying psychiatric concerns. The most common side effects are going to be that nausea, some people can have the abnormal dreams, constipation, flatulence and vomiting. Okay, combinations of varenicline with an AR T and Bupropion, the combination in our tea and Veronica was more effective than varenicline alone for 12 weeks, so using a combination therapy is important. And then the combination of Bupropion and vernetzung was more effective than varenicline alone and was more effective and then and the highly nicotine dependent, so combination therapy again, is going to be the most important.

48:56
All right, last question,

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which common antiretroviral medications interact with Bupropion and varenicline? Is it a nucleoside reverse transcriptase inhibitors? B non nucleoside reverse transcriptase inhibitors, see protease inhibitors or a D, integrase inhibitors or E none of the above?

49:34
Okay

49:50
all right, the answer is E, none of the above. So, there aren't any major drug interactions that we need to be concerned with with either therapy. They Really don't interact in any really serious capacity. So they're, they're completely safe, and I would feel comfortable prescribing it for my patients. So, in 2014 59% of smokers with HIV have used smoking cessation pharmacotherapy, and while only four to 7% of people can quit smoking without medicine, as I've mentioned before, a lot more people who use medicines can stay smoke free for over six months, so a lot higher success rates. varenicline can more than double the chances of quitting smoking like compared to taking no medicines. There's also been studies out there that looked at additional

agents if neither of those are options. nortriptyline has been found to double chances of quitting compared to taking no medicine. There's also quantity and that has been found to double chances of quitting compared to control groups, the patch and the GM had a 36% six months abstinent rates and trial. And again, that's one of the most common combinations that I see. And this is just a chart that shows you that these individual agents are again more effective than placebo. So not having anything is not the best option. quitting cold turkey is not as successful as individuals who get any type of pharmacotherapy help.

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So to conclude

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today, our summary, to maximize success intervention should include counseling and two forms of pharmacotherapy clinician should encourage the use of effective medications by all patients attempting to quit smoking. Exceptions are going to include any type of medical contraindication or use in specific population for which there is insufficient evidence of effectiveness. Important to take into account special populations, comorbidities and concomitant medications when choosing treatment, and HIV patients. clinical outcomes are way better when they quit using tobacco. Again, just a reminder, HIV positive smokers lose over six years of life compared to HIV positive non smokers. So smoking cessation is really really important in our patient population.

52:04
Thank you so much, Dr. Murphy.

[End Transcript]