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TRANSCRIPT - GR 05 06 22 "**Cigarette Addiction and Treatment: Overview for Care Providers**"
***Steve Baldassari, MD, MHS,* from the Yale School of Medicine**

UVA Chiefs

00:14:06Welcome to grand rounds over those here in person and welcome to those overdue and welcome today, Dr sorry so today I have the pleasure of introducing Dr.

- 00:14:19Madison section of pulmonary critical care.
- 00:14:24cryptocurrency medicine so Dr Sarah completed as an undergraduate medical education at Boston University.
- 00:14:30Before traveling ever so slightly less to Yale new haven hospital, where he completed his internal medicine residency a hospitals here and fellowship and pulmonary critical care medicine.
- 00:14:40doctor Baldisseri enjoying the section of pulmonary critical care medicine in 2017 assistant professor in the section.
- 00:14:47At yeah in addition to his clinical activities within the section, he is an NIH grant funded researcher interested in all matters regarding tobacco use.
- 00:14:55A selection of his current research interests include the research being done through Dr Baldisseri K 23.
- 00:15:00which focuses on better understanding the factors that influence E cigarette nicotine delivery through novel brain imaging techniques as mentor research that seeks to understand the social and public health impacts of metal band.
- 00:15:11And cigarettes and E cigarettes and additional collaborative work researching nicotine blocks.
- 00:15:16Not to be pigeonholed into tobacco use Dr Baldisseri has ongoing collaborative research grants and funding grants to focus on other matters within the world of addiction and neurobiology.
- 00:15:25he's an expert on matters of tobacco use an addiction sciences and has been featured on the JAMA podcast at his presentation stages and the curbside his podcasts where I came across this work.
- 00:15:35Today deductibles are will be sharing some of his considerable knowledge about cigarette addiction, a team based approach to treatment, a review pharmacotherapy and, of course, a discussion of E cigarettes, Dr Baldisseri the floor is yours.

Steve Baldassarri

00:15:48Thanks so much for that introduction thanks so much for inviting me to be with you today.

- 00:15:54Just to start I don't have any relevant disclosures or conflicts of interest as, as you mentioned my funding just comes from NIH FDA and department funds from the Yale school Nice.
- 00:16:09So I think the past few years have been really stressful for many of us, obviously the pandemic.
- 00:16:17Going on i'm still kind of ongoing and it was really a tough time I think for people who smoke and people with substance use disorders.
- 00:16:26But there was an increase in cigarette use first time in 20 years that occurred and we'll talk kind of about stress and how that sort of plays into cigarette smoking.
- 00:16:36But it kind of coexisted with this sort of parallel epidemic of mental health suffering, and I think.

- 00:16:43that's been a big part of the coven 19 pandemic story I think that's getting told more and more as time goes on, but just things to kind of keep in mind, and I think that this is a really.
- 00:16:55really important time for this this discussion, I just wanted to talk a little bit about kind of how I got interested in this whole thing because.
- 00:17:03You know my background for this is perhaps a little bit a typical but I kind of became interested in the issues of addiction during my critical care training.
- 00:17:15And really the thing that became apparent that had a lot of critically ill patients, and I remember one weekend we had our make you filled up with people with kind of in Stage lung diseases.
- 00:17:27metastatic cancers relating to smoking, alcohol related liver failure opioid overdoses and it really just became clear to me and it's probably clear to many of you that.
- 00:17:39You know, mental health behavior and mental illness is a major driver of physical illness and, especially, especially true in our icu to this day.
- 00:17:51So really that's kind of going to be the focus of this talk is sort of talking about cigarette addiction in the context of behavior mental health how that affects physical health.
- 00:18:01And, of course, you know it's important for me to mention that as, as you all know, you know mental health is not existing in a vacuum it's also.
- 00:18:09tremendously influenced by the environment in which we exist in which our patients exist so we'll kind of try to tie a lot of these themes together throughout the course of the talk, but we're really be focusing on kind of a broad overview of cigarette addiction.
- 00:18:26And I've kind of laid out some learning objectives for today's talk, but I'll take you through over the next 4045 minutes.
- 00:18:35On the first one is going to be to try to understand cigarette addiction conceptually and I think this is really helpful, just as a way for us to kind of think about the problem.
- 00:18:44And, in particular, to understand the problem, not just from our point of view, but also from the patient's point of view and really I think that's going to help with our treatment if we can really understand it from that perspective.
- 00:18:57we're going to try to understand the team approach to treatment so really recognizing, this is an incredibly complex issue that.
- 00:19:05Our patients as you're all aware are not just coming with one problem they have many, many problems and how to cigarette addiction kind of tie into that.
- 00:19:14And how do we harness and leverage all of our resources right to work as a team, instead of as individuals will review some of the basics of pharmacotherapy which many of you are likely familiar with we'll just do a kind of an overview of the meds that we want to use in the settings.
- 00:19:31moved in into some more controversial and emerging areas of importance, including e cigarettes and then we'll conclude with just a brief overview of the importance of motivation for our patients and also for our providers.
- 00:19:49So I like to start with some of the key take home points I kind of like to start with them, and with them and then these will be sprinkled in throughout this talk.
- 00:19:57But the two kind of key take home points first, is that we can think about cigarette addiction as an acquired chronic brain disease that is profoundly influenced by environment so.
- 00:20:09This is kind of the key point just that this issue is going to be long standing, but the manifestation of it will depend drastically on what kind of environment, our patients are living in.
- 00:20:21And then the second point is that for really for optimal results and for an optimal process, we want to always combine behavioral and pharmacologic treatments, using a team based approach.
- 00:20:36So I'll start with a case so I'll have three cases to share with you and we'll try to use these cases to generate some thought, generate discussion questions I'm from which all launched the rest of the content, so the first case we've got a 54 year old woman.
- 00:20:52She presents with acute and chronic dis MIA productive cough.

- 00:20:58She reports smoking cigarettes daily and previously had had much heavier use, but was able to cut back, though not able to stop smoking completely.
- 00:21:09For past medical history is notable for COPD and depression, so this kind of coexisting medical and psychiatric comorbidities which will be a recurring theme here and she's had multiple hospital missions both medically and psychiatrically.
- 00:21:24So this time she gets admitted to Inpatient medicine service for what's presumably a COPD exacerbation.
- 00:21:31On the first day she's got an exam notable for diminish breath sounds an expository wheezes that are diffuse and her mood is notable for being restless angry and irritable.
- 00:21:44And as soon as she encounters a provider she indicates that she wants to sign out against medical advice.
- 00:21:53So key questions that kind of come up from this case first you know, does this patient have addiction and, if so, how do we know that.
- 00:22:02On the second point, I think, is a really important one, that we need to think more about and sort of Why do people smoke cigarettes, so I think we tend to look at this more from our perspective, but what is it that.
- 00:22:13is driving the patient's motivation and behavior because people know this is not good for them, so why, why are they doing this.
- 00:22:20And then the third is kind of what are the signs of nicotine withdrawal, how do we recognize nicotine withdrawal in clinical settings and what do we do about it.
- 00:22:31So first what is addiction So how do we know that this patient that I've illustrated does in fact suffer from addiction.
- 00:22:39So addiction, again, is a chronic acquired brain disease that is profoundly influenced by environment, so these individuals have both structural and chemical changes in brain structure.
- 00:22:51But the manifestation that they'll they will they will show is going to vary depending on whether they're in an environment that.
- 00:22:58Perhaps promotes the behavior so if they're around other smokers, or perhaps they're under a lot of stress.
- 00:23:04That will look very different, as compared with somebody who has a lot of social support and fewer comorbidities so thinking again putting that that sort of the brain changes in in the context of their existing environment.
- 00:23:18there's a loss of control over use so pete people may indicate that they want to use less of the substance or they don't want to use it at all.
- 00:23:27But there's a perceived loss of control they're not able to to stop despite a desire to do so.
- 00:23:35i'm kind of going along with that cravings so these sort of strong urges to wanted to want to use the drug vectors that can persist for months or years.
- 00:23:44Perhaps even after they've stopped using contributing in large part two of the higher rate of relapse that we observed.
- 00:23:50Come again compulsive use really feeling like there's kind of been choice sort of removed from the equation.
- 00:23:57And then I think this last one is really important, in this setting continued use despite consequences.
- 00:24:02Right so consequences can be defined in several different ways, a lot of times we're thinking about you know, problems with.
- 00:24:09legal issues problems with detoxification but really in the setting of smoking we're thinking a lot about medical consequences.

- 00:24:16So we're thinking about the development of heart and lung disease, the development, you know multiple hospital missions oncology problems so really the presence of a serious medical comorbidity along with continued smoking is kind of evidence of addiction.
- 00:24:34So what exactly is a cigarette this was something that really I don't think I got a lot of training, during my medical.
- 00:24:40Initial medical training, I really had to kind of dig into the literature here and learn more about this for myself, but it's really a fascinating thing.
- 00:24:47I think one sort of simple way of thinking about what a cigarette is that it's a highly engineered nicotine delivery system.
- 00:24:57So again, we know that nicotine is sort of the primary addictive chemical in smoke, though not the only addictive chemical.
- 00:25:03But these products are not sort of put out there by accident they're actually actively engineers that that nicotine will get to the user, both in high doses and very quickly.
- 00:25:16Cigarettes are pharmacological the active in can produce a range of effects, including acting as a stimulant angelic an analgesic I'll talk a little bit more about that the next slide.
- 00:25:27it's, of course, tobacco road and paper, but obviously it's a lot more than that so we're talking about the inclusion of many additives.
- 00:25:35That are there to increase the potency and the appeal of a cigarette so an example that's under fire right now is menthol, which is a flavor and.
- 00:25:44designed to basically ease the smoke going down the throat, making it easier for people to consume the product.
- 00:25:52um there's a multitude of ingredients a multitude of chemicals and then, as many as 69 known carcinogens so we're talking about a product that is both highly toxic but also highly addictive and that's why it's so dangerous.
- 00:26:08So it kind of begs the question you know if we know that this product is toxic is addictive Why do people smoke cigarettes so trying to see this again from the patient's perspective is really going to help in dealing with this issue as providers.
- 00:26:23So I think that patients will tell you if you ask them your experience that they feel they feel that they get a lot of benefit, at least in the short term, so feelings of pleasure and satisfaction heightening of mood so in the short term that can act somewhat of an antidepressant.
- 00:26:41People report stress and anxiety kind of helps to ease that.
- 00:26:46relief of pain, so I think that this is tends to be one of the more overlooked.
- 00:26:51issues regarding cigarette smoking is that it can have potent analgesic properties in the short term, and so there is a strong correlation between people with chronic pain syndromes and cigarette smoking.
- 00:27:04And then there's several cognitive effects so improvements in alertness concentration focus, we know that cigarette smoking.
- 00:27:14More highly coexist and people with certain psychiatric conditions so things like ADHD or schedule, affective disorder, so these can have sort of.
- 00:27:23More cognitive pro cognitive effects in the short term and then there's the number of endocrine the logic and got effects, so it acts as an appetite suppressant.
- 00:27:34And it can contribute to weight loss, so you have an individual who who's smoking good who's also obese or overweight or concerned about their weight that can be a major barrier in terms of promoting smoking cessation.
- 00:27:47And then, this last one increase gut motility was very interesting for me personally, because I had a.
- 00:27:54story about that I had a, you know as a fellow at a research, study doing a smoking cessation intervention.

- 00:28:01And we had a study participants who had actually done pretty well, she was she had been successful in in stopping smoking, for a period of time, but subsequently relapsed.
- 00:28:12And then, when the study came to an end, we kind of had some.
- 00:28:15sort of follow up interviews and we asked you know what was it that you think kind of contributed to your relapse.
- 00:28:21And the thing that was the so surprising to me when she said Oh well, it was really just because I felt constipated.
- 00:28:26And I had never thought that that could be a reason that people would smoke, but evidently it for this particular person, this was really important.
- 00:28:35And just kind of show me that way if we had just kind of had her on a bow regimen or perhaps on a better diet, we could have potentially prevented that relapse.
- 00:28:44So I think that the key point here is that for the person who smokes a daily, we need to consider that for that from their perspective, these nicotine cigarettes could be their most important home medication for a variety of different issues.
- 00:28:59Okay, moving on in terms of sort of mechanisms of addiction, there are many different mechanisms by which that these products are addictive but i'm going to illustrate sort of the most well defined.
- 00:29:10Which is the binding of nicotine to alpha for beta to nicotine acetylcholine receptors in the midbrain So this is the midbrain ventral tegmental area.
- 00:29:20nicotine binds here the neurons then project into nucleus accumbens, which is the brains pleasure Center.
- 00:29:27leads to release of multiple neurotransmitters pulling dope mean gabba and glutamate which collectively are responsible for the farm clear logically active effects of cigarettes.
- 00:29:39And over time repeating this process again brain structure and function will change and addiction takes hold.
- 00:29:48So once it hope takes hold We really need to realize that cigarette addiction is a chronic illness.
- 00:29:55And I think it's really important that we consider cigarette addiction, similarly to the way that we think about chronic medical conditions so thinking about things like asthma COPD diabetes, hypertension.
- 00:30:06conditions that that can be managed and must be managed longitudinally but that are also prone to periods of.
- 00:30:14Of relapse right so periods, where they're not well controlled so thinking about the sort of the norm.
- 00:30:21relapsing remitting course so, so there are very high rates of relapse, especially in the sort of early period.
- 00:30:28And a lot of that can be attributed to withdrawal symptoms and I'll kind of mention what those are had a spot those but withdrawal from the effects of cigarettes is a really important thing we have to recognize and try to aggressively treat.
- 00:30:43cravings so again it kind of mentioned cravings but cravings can last sort of even beyond the initial withdrawal period, so these can go on for weeks, months or even years, in many cases.
- 00:30:54And and those cravings can be triggered by stress so person is doing well, they feel some stress, all of a sudden, I remember this thing made me feel better so I'm going to go back to that that's one of the reasons that this is so hard to treat and has to be dealt with longitudinally.
- 00:31:13So what about these withdrawal symptoms, I always loved the withdrawal symptom question on on like a board test or something, because I knew that if I could just remember.
- 00:31:21Like what was the intoxicating effect, then i'll have to do is remember that it was the opposite so same kind of thing here right and we sort of illustrated this with the case but.
- 00:31:30predominant withdrawal symptoms mood disturbances extremely common.

- 00:31:35So just imagine you know person smoking they're doing they're doing Okay, all of a sudden, they kind of stop, and then they just feel terrible so these are the issues right so depressed mood anger irritability.
- 00:31:47anxiety they feel anxious more so very, very difficult cravings again those can kind of continue through the withdrawal period and beyond.
- 00:31:58difficulty concentrating so sort of the opposite of that of that alerting effect that people get when they are smoking and then.
- 00:32:06And the GI effects, so the increases in appetite hunger waking.
- 00:32:12These symptoms tend to begin within the first day sometimes less, and then they can persist for weeks depending on how heavy of a smoker person is.
- 00:32:25We should always kind of assess for these things anytime we're taking care of a patient and making a smoking cessation attempt.
- 00:32:34So kind of key points from this first case that you want to sort of take away addiction as a chronic relapsing brain disease that is profoundly influenced by environment.
- 00:32:45Cigarettes can be most easily conceptualized as highly addictive nicotine delivery systems and withdrawal symptoms will occur after smoking cessation, we have to always assess those to understand how to best treat our patients.
- 00:33:06So move on to the second case, where this case will start to illustrate some of the issues around barriers to treatment.
- 00:33:15or on issues of the standards of care we'll get to that and starting to dive into this E cigarette question that I think many of us are interested in and want to understand better how to edit deal.
- 00:33:27So here we've got.
- 00:33:29A 26 year old woman she's been smoking one pack of cigarettes daily since the age of 13.
- 00:33:36And again, I bolted that age, because this is typically when it starts it usually starts in adolescence, which is a period of rapid brain development and so these people's brains have developed differently, so we have to realize it's very different.
- 00:33:50there's a pastry notable for anxiety alcohol use so once again these kind of co morbid psychiatric and substance use issues.
- 00:34:00she's had multiple unsuccessful quit attempts, despite the use of approved treatments so things like nicotine replacement for on a colon and be appropriate.
- 00:34:11And the patient wants to try electronic cigarettes as a means to stop smoking and once your opinion as the provider.
- 00:34:22The key kind of questions that that we're going to start to work through from this case First, what are the barriers to treatment, I think this is.
- 00:34:32So so important, something we probably don't pay enough attention to, but what are the things that we really need to accomplish before we can kind of expect that we're going to have a positive treatment outcome, what are the, what are the barriers to treat.
- 00:34:45Once you've addressed barriers, then what are the standard treatments So what are the kind of what are the.
- 00:34:50sort of things that we just want to do pretty much across the board to offer for all of our patients just get into kind of standards of care.
- 00:34:58And then, and then, when standards of care not working or when patients are wanting to try something different, what about these other sort of approaches so we'll talk specifically about the role of E cigarettes, whether for smoking cessation or for harm reduction, how does that play in.
- 00:35:17So I think that this is a really important slide thinking about some of the things that will prevent our patient from being able to stop smoking there's.
- 00:35:27A lot of different things, and this is where kind of dealing with these in books that sort of team approach and that starts to become very apparent.

- 00:35:36First I’m kind of just sort of mentioned it, but I’m going to come back to it later in the talk this lack of motivation or insight.
- 00:35:43So so there's no question that motivation is critical for success, and so we really have to kind of assess this at the at the forefront.
- 00:35:52And we'll talk about ways to do that, but just let it be known that a lack of motivation is, it would be a major barrier to successful treatment.
- 00:36:01Underlying psychiatric gilks this kind of again sort of speaks to some of the pharmacologic properties of cigarettes.
- 00:36:07But if we've got a person who's got some depression got some anxiety that's not necessarily optimally controlled.
- 00:36:14it's we're going to have a real challenge in terms of treating them because they're likely self medicating with cigarettes so recognizing that that's that that's a play.
- 00:36:24And being willing to again engage with our behavioral health colleagues other drug use so most people, many people that use cigarettes are not only using that.
- 00:36:34Cigarettes can act synergistically with other drugs such as alcohol opioids and cannabis so dealing with two other drug use and drug use disorders.
- 00:36:44social factors, so what this is again getting more into their environment so what's going on in their environment are they living at home with a bunch of people who are smoking all the time.
- 00:36:55or do they have a really supportive family and they're the last smoker in the whole family and the family really wants them to succeed very different situation very different prognosis.
- 00:37:06Stress same kind of thing, are they do, they have stable housing have a safe at home.
- 00:37:11What are some other sort of stresses, and this is where we may want to engage with social workers or other people who can kind of help and support the patient in reducing stress.
- 00:37:22And then sort of things just sort of based on the patient on a host right, so if they have cognitive impairment if they.
- 00:37:29are unable to adhere to treatment, these are other things that are going to be important and then, of course, our health care system which tends to be less focused on prevention of these medical problems and more focused on treatment.
- 00:37:45So, in terms of coming up with a treatment plan I think it's really important that we think about customization personalization.
- 00:37:52Really, a one fits all doesn't work here, because these patients are so complex so again we've been talking about and i'll keep hammering home this idea of it's sort of team approach.
- 00:38:03So, you know as an individual don't take this all on yourself realize that you've got your one role to play, but there's many other.
- 00:38:12Other providers family members other people who are absolutely necessary to help this person have success.
- 00:38:19Addressing comorbidities we discussed that I’m using multiple treatment modalities and we'll get to those momentarily.
- 00:38:26But the sort of behavioral and pharmacologic treatment modalities are both good individually and better than no treatment, but the best is really to use them together and that that's sort of the approach that we want to take whenever possible.
- 00:38:42We want to collaborate with our patient so make sure that we are choosing things that they that they are optimistic and enthusiastic about regardless of whether it's what we want.
- 00:38:52And just being willing to modify over time right kind of anticipating those periods of relapse and remission I’m realizing that we have to be flexible.
- 00:39:02And then kind of being realistic so just understanding that this is a really complex issue in that it's not always going to be solved in one shot frequently that that would be the case.
- 00:39:16So first kind of the sort of one cornerstone of treatment is behavioral therapy.

- 00:39:21um there's many different ways to go about this, but generally as if we're medical providers we're usually going to be consulting.
- 00:39:29Mental health professionals at our Center we have a comprehensive tobacco treatment service which really focuses specifically on this one issue.
- 00:39:39And it's really great because they provide both sort of the behavioral strategies, as well as pharmacologic prescribing in one.
- 00:39:47So if you have access to a service like this it's really great to take advantage of it because it's just really convenient to kind of do it all integrated in at one time.
- 00:39:57motivational interviewing we'll talk about that toward the end of the discussion, but this is an important tool for helping move our patients or unmotivated from that.
- 00:40:07sort of pre contemplated phase of change, where they're not really thinking about are considering making a move to something where they're more contemplated are action oriented they're ready to start changing.
- 00:40:20cognitive behavioral therapy similarly identifying maladaptive thoughts and their associated behaviors and really trying to come up with some concrete strategies for how to help patients to manage cravings and other related triggers for smoking.
- 00:40:35And then for places and locations with REPS less resource support on taking advantage of government quitline so tell health is really taken off during the pandemic.
- 00:40:46But really taking advantage of some of the phone behavioral counseling and the free treatment that they will sometimes provide.
- 00:40:57So, moving on the behavioral sort of the one component, now the pharmacotherapy is kind of the second component and again we're talking about so just this just the basic standard of care, which I think that many of you are likely familiar with.
- 00:41:10So, in terms of pharmacotherapy there are seven FDA approved treatments that have all been shown to be better than placebo for treating smoking addiction and also safe to use in combination, so you really can combine any of these things together.
- 00:41:28But left half of the screen the the things in green font or what we can think about as controller medicines So these are the nicotine transdermal patch of Verona clin and the proper noun.
- 00:41:40And the controller mets are good to sort of establish a baseline level of maintenance.
- 00:41:47But they will not deal with those short term cravings, so I think this is somewhat of a misconception, is that people think, well, I put the patch on I still wanted to smoke.
- 00:41:56Well yeah that's because the patch is not necessarily for that short term thing so that's where the shorter acting.
- 00:42:03mitts so that gum the laws NGOs are probably the two most commonly used, and those are available by purchase over the counter less commonly used but available nicotine nasal spray and inhaler typically not tolerated as well by patients but still remains an option.
- 00:42:24So to sort of take you briefly through the three controller meds on their mechanism dosing and some special issues around these.
- 00:42:32So, in terms of the nicotine patch it's basically acting as a full agonist of the Alpha for beta to nicotine acetylcholine receptor dosing is is impure so the general guideline is to start with the 21 milligram or high dose patch for people who are smoking 10 or more cigarettes a day.
- 00:42:54Whereas the 14 milligram patches for those smoking fewer than that.
- 00:42:58We can just say from clinical experience that the dose really needs to be treated based on clinical response.
- 00:43:05So some people smoking more than 10 cigarettes a day might need a lower dose and others who are heavy smokers might you might need to start with, like 42 milligrams so two patches at once.
- 00:43:16So there is again not really a one size fits all here, these are just broad guidelines in terms of side effects.

- 00:43:24Local skin irritation can be can be reduced by encouraging patients to shift sides with their patch so apply to one limb, one day, then the next day take it off put it on the other, limb.
- 00:43:37Other sort of symptoms that can occur with nicotine intoxication would be gastrointestinal symptoms of nausea vomiting.
- 00:43:46heart cardiovascular issues heart palpitations dizziness and then sleep disturbances so things like insomnia, and vivid dreams can be can be commonly reported.
- 00:43:57So if you important points about nrt.
- 00:44:01On the first thing is that it is probably more commonly under dosed so common scenario is that a patient will put the patch on for a few days.
- 00:44:10And then they come back they don't have it on and they say, well, I wasn't working for me, I did so I'm not going to use it when the reality of it is probably right, we probably just needed to to be more aggressive with it.
- 00:44:21Similarly, the patch and other energies can safely overlap with cigarette use.
- 00:44:27And we really need to counsel our patients that if they are smoking on top of the patch on top of the gum.
- 00:44:34That they're going to be having more nicotine in their system that they really need to instead of removing the patch removing the treatments are giving them is to try to smoke less try to cut back, and a lot of people will do that on a gradual basis.
- 00:44:47Long term use of energy is safe and unequivocably it's less harmful than continuing to smoke, so we really need to sort of think about these things again more in the long term sense.
- 00:45:02varenicline another very effective medication partial agonist of the Alpha or beta to nicotine co calling receptor it's taken orally a deuce tight treated gradually up to one milligram twice daily.
- 00:45:17Again, most common side effects are our GI so they get nausea and then some sleep disturbances, I think that this next point is really important, which is that.
- 00:45:28Control depression or other psychiatric disorders are not in any way a country indication to run a clinic or any of the other meds.
- 00:45:37And so there was a very large randomized trial that looked at all the approved drugs head to head and look specifically at the incidence of severe neuropsychiatric side effects.
- 00:45:49And what they found was that a there was no difference between the meds so the patch varenicline be broke ground, they were all had similar rates of neuro psychiatric side effects.
- 00:46:00If you were an individual who had a history of psychiatric illness, there was a 6% rate of six serious psychiatric side effects if you were had no prior psyche history, there was a 2% rate.
- 00:46:12So the point is that we really need to monitor all of our patients for these neural neuro side effects when we're doing smoking cessation regardless of which drug they're using.
- 00:46:26All right, and then finally there's be appropriate, which of course is it different class altogether, so this is an antidepressant medicine.
- 00:46:33which acts as a neuron ovary uptake inhibitor of dopamine and norepinephrine it's typically tie treated to dose of hundred 50 milligrams twice daily.
- 00:46:43Using a lower dose if you have a patient with liver impairment things to watch out for with bupropion.
- 00:46:50Lower seizure special so you want to avoid this in patients who have epilepsy or other red cedar risk, such as severe alcohol use and withdrawal.
- 00:47:00And then they can contribute to weight loss which could be a benefit in patients who are obese or overweight.
- 00:47:08But certainly not to be used and patients that are abnormally low body weight and or have eating disorders and again this this medicine can be given safely in combination with the other two.
- 00:47:22So sort of as a general principle, you want to always have at least one of these controller medicines on board, so the patch radical and or disagree on.

- 00:47:31And you can have more than one, you can have all three, but you want at least one of them overboard on where to act as a long acting medicine.
- 00:47:40And then you want to combine those with a shorter acting form of nicotine replacement, such as the GM lozenge nasal spray or inhaler and then.
- 00:47:49And then again it's not going to be sort of one attempt to then that's it it's going to require some Thai tradition, traditions and subtraction as needed.
- 00:47:59This is a graph that's just illustrating one of the problems were the challenges that we face when dealing with cravings with regards to the PR ends.
- 00:48:07The X axis is indicating time following administration of nicotine products, and then the y axis is blood nicotine concentration.
- 00:48:18And these curves each are showing you a different nicotine containing product, you can see there's one product here that delivers nicotine extremely quickly and in a high dose and this, of course, is the regular cigarettes.
- 00:48:31These other curves are showing other smokeless tobacco products, and here is the nicotine gum.
- 00:48:38Right this point, this is about 45 to 50 minutes after initial administration, which is quite long when a person is used to getting their their nicotine hit at within five minutes.
- 00:48:49And so it's that slow delivery of nicotine, which is one of the limitations to to use these products, but it's sort of the best that we've got in this in this setting.
- 00:49:00So, in terms of following up, we always want to revisit tobacco use at each visit this is going to give us a chance to really refine and customize our plans, depending on our patients response.
- 00:49:13We want to assess withdrawal symptoms and cravings figuring out whether our initial treatment was aggressive enough or perhaps needs to be more aggressive.
- 00:49:23Again utilizing the team approach to assess ongoing stressors and barriers to treatment.
- 00:49:28understanding that relapses are typical not to be excessively discouraged, but really just kind of use it as an opportunity to go back to the drawing board and to really modify the treatment approach as needed.
- 00:49:40On this last point I want to bring up because many of our patients are medically complex and so engaging a pharmacist, can you really important for patients who are on drugs of medications for other medical conditions, because we know that cigarettes do have significant drug interactions.
- 00:50:02Specifically they've got a place out cyclic aromatic hydrocarbons, which can induce liver cyp enzymes.
- 00:50:09This then leads to the speeding up the metabolism of many different drugs and will reduce those drug effects so so individuals who are getting prescribed medicine, for example, for hypertension might.
- 00:50:22If they still smoke they might be getting a much higher dose than they ordinarily would, and so what that means is that if we help our patients with smoking cessation we may need to reduce the drug doses.
- 00:50:35So this slide is not meant for you to read all the drugs on the left side, but just to note that there are many different drugs and drug classes that are are affected by smoking.
- 00:50:45And that, in many cases when we are successful, with smoking cessation these people may need lower medication doses so always take advantage of our and engage our pharmacists in this process.
- 00:51:04So that kind of is a wrap up of the sort of standard of care So how do we want to kind of treat treat sort of all commerce as our starting point.
- 00:51:13Now we're going to get into this a little bit more controversial issue around E cigarettes and a VP I'll take you through an overview and kind of go over some of the important concepts here.
- 00:51:26So E cigarettes are battery operated devices that heat and aerosolized a liquid solution that may contain nicotine.
- 00:51:35As you can see from the slide they come in a variety of shapes sizes and designs but they're all really operating by the same basic mechanism.

- 00:51:44And so they all contain a battery, which is the heating source that battery will provide heat to this metal heating element that's here.
- 00:51:54The metal heating element is that in contact in direct contact with a liquid notice any liquid which contains nicotine and as that liquid heats up it forms an aerosol, and that is what is inhaled a by the user.
- 00:52:10kind of the key points to remember on e cigarettes, this is sort of.
- 00:52:15drastically simplifying the issue, but I think these are really important points E cigarettes are both toxic and addictive.
- 00:52:22But that said they are significantly less toxic than and regular cigarette smoking, this relates to the processes of comparing combustion with heating that we'll talk about shortly.
- 00:52:35And the long term heart that e cigarette use are unknown and unlikely to be fully understood for at least several more decades.
- 00:52:45So to kind of define a few key terms related to this issue so facing is the inhalation of a heated in Paris lie solution, known as an e liquid and so when we refer to e cigarette use we're referring specifically to this process of basic.
- 00:53:01we're going to compare that with smoking, which is the inhalation of combustion products and involves a process of burning.
- 00:53:08This is an important distinction because burning leads to much higher temperatures of substance and much more complex mixtures of chemicals.
- 00:53:18So it leads us into this question or this concept of harm reduction, so harm reduction is the less harmful form of drug use or the less harmful route of administration of a truck.
- 00:53:30So kind of a classic example of harm reduction is the use of methadone or buprenorphine for individuals who inject heroin.
- 00:53:37So here we're replacing the heroin with a drug of similar mechanism but administered in a much safer route.
- 00:53:45Similarly, the use of clean needles for individuals who want to continue to use injection drugs will at least reduce the risk of infectious complications.
- 00:53:55So we want to think about and again the jury's still out, but we want to think about e cigarettes as potentially a harm reduction strategy for smokers.
- 00:54:04And again, the key point here is that cigarette smoke is much more toxic than E cigarette aerosol.
- 00:54:11So, despite the fact that these look similar one is definitely much worse than the other, and it is smoking, so we can't sort of lose track of the fact that smoke.
- 00:54:24is really has these known harms right that it kills people 600 ingredients more than 7000 chemicals mean multitude of carcinogens and then these combustion products so things like carbon monoxide and tar, which are not present in e cigarette aerosol.
- 00:54:43To kind of illustrate the point these investigators looked at a toxin comparison of common toxins found in both regular and E cigarettes, the key finding was that regular cigarettes had nine to 40 and 50 times greater levels of these toxins as compared with e cigarettes.
- 00:55:06So what about actual exposure what our users actually exposed to, so this is a study of of urinary and blood biomarkers here we have in nfl, which is a known carcinogen.
- 00:55:18And we've got groups of people using different substances, some are using cigarettes, some are using cigarettes in combination with other things, and some are using E cigarettes only.
- 00:55:28And so it's easy to see that if you're in the E cigarette only group, you have less exposure to this biomarker of harm as compared with those who are using cigarettes, along with other products.
- 00:55:42So, so if you accept that e cigarettes might be harm reduction from smoking and not everyone does, except that to this point.
- 00:55:51And next logical question would be whether E cigarettes are in fact effective for smoking cessation.

- 00:55:57So I’m going to show you this sort of trial at the United Kingdom, which is probably the strongest evidence to date.
- 00:56:03That E cigarettes can be effective for smoking cessation, at least in certain circumstances, but this trial-randomized people who are smoking and wanted to quit to either E cigarettes or conventional nicotine replacement therapy.
- 00:56:18There were 886 participants, the primary outcome that they use was one-year smoking abstinence.
- 00:56:25And the key finding was that e cigarettes were superior to conventional nicotine replacement by a nearly two to one margin.
- 00:56:33But noting that these quit rates are still quite low right so at one year only 18% in the E cigarette group were absolutely and 10% in the energy group.
- 00:56:45Importantly I’m 80% of people in the E cigarette group we're still using their products at a follow up indicating that this sort of long term nicotine use was necessary to help them be absent from cigarettes.
- 00:57:02So what do we do when we have an e cigarette using patient who's trying to stop smoking, I think we want to start with some simple messages.
- 00:57:10That kind of are neither encouraging or discouraging but really focus it on sit on cessation of combustible that's The key thing.
- 00:57:19So I’m here to help However, I can see really just kind of accepting that they may be taking a less conventional approach, but then trying to kind of redirect them back to.
- 00:57:28The proven treatments so again back to the prior slides thinking about you know, have you tried the patch and the gum have you tried to run a clinic you tried the Program.
- 00:57:38i'm trying to get them to this and again they may have already tried I’m offering though to prescribe and to refer to to a specialist who can really, really dive into the the details.
- 00:57:51We want to make it a point to that they don't smoke tobacco combustible cigarettes at all, so we need to again focus on that known harm and make that a really high priority.
- 00:58:04And then for patients who are using E cigarettes were stable off of combustible products and are not likely to relapse into to cigarette use.
- 00:58:12it's totally reasonable to try to wean them off of E cigarettes and beeping when possible.
- 00:58:18I will just say that beeping addiction is now recognized as being increasingly recognized as a major problem and we don't have any proven effective methods for dealing with that yet so that'll be a.
- 00:58:30topic of future research so to summarize the second case, when we're thinking about cigarette addiction, a team approach is required and optimal.
- 00:58:41We want to use multiple treatment modalities, including both behavioral and pharmacologic techniques and with regard to e cigarettes, they do seem to promote smoking cessation but their long term health effects remain unclear and controversial.
- 00:59:02So i'm going to wrap up with a shorter case three and just using this to talk about the importance of motivation so here we've got a 63 year old gentleman he smokes half a pack of cigarettes daily for the past 50 years.
- 00:59:19He said well controlled schizophrenia again we're seeing that link between sort of the medical and psychiatric coming into play it's got squamous cell carcinoma the lung getting radiation chemotherapy so major medical comorbidity and.
- 00:59:37You query him and he expresses that he has no interest in quitting smoking.
- 00:59:43So key questions does motivation matter it's an unequivocal yes and I’m about to explain you why it's so important and second question, then, is how do we motivate our patients to change their behavior.
- 00:59:57So this is a really, really interesting and important book, I think, for myself certainly I’ve learned a great deal, and this is really helped me.

- 01:00:07But I would recommend it for all of you, if you haven't read it, and you have time it's called thinking fast and slow.
- 01:00:13Down economy is a behavioral economist and he really what he does in this book is he describes these two systems of thought.
- 01:00:22That we are all that we all have they're all using system one he describes as this fast automatic unconscious and effortless way of thinking.
- 01:00:33So it's kind of all the things that we do every single day that are on autopilot so.
- 01:00:38So for me I wake up in the morning and without thinking about anything I roll out of bed brush my teeth make my breakfast take my shower get my car and move.
- 01:00:46And I do all that effortlessly right it doesn't require any thought.
- 01:00:50system to Is this the opposite it's the slow calculating logical part of our of our thinking and it requires effort.
- 01:00:59So this is where you know I'm on rounds and I'm thinking about complicated patient trying to sort through all the data that's there and really making this sort of conscious effort to think through a problem.
- 01:01:11And the long and short of it is that as human beings, we evolved under conditions of scarcity, and in order to survive scarcity it's super important for us to conserve energy.
- 01:01:23And so, another way we conserve energy is by keeping ourselves in our thinking in this system one as much as possible is sort of effortless automatic way of thinking.
- 01:01:33And so you can apply this this concept to addiction, so a person.
- 01:01:38Who smokes develops addiction that addiction becomes automatic behavior so becomes really truly part of their system one so they're doing all of us automatically.
- 01:01:48And then, because we are again evolved to want to be in system one this is associated with survival and so when you try to.
- 01:01:56Try to stop this try to reverse it there's really a large amount of energy that they are going to require to not smoke and so because of this it's very difficult for them to stop smoking.
- 01:02:08So that leads us to this this issue, so the key point again is that motivation yeah they have to want it, that motivation is required to expand the needed energy to activate that system to to overcome their addiction.
- 01:02:24And just to kind of illustrate this point further I borrowed with permission these slides from my colleague Dr Lisa cheeto on motivational interviewing there by invoking my system one.
- 01:02:36So what is motivational interviewing How does it work it's a collaborative dialogue.
- 01:02:42In which we're trying to increase the patient's own motivation and commitment for change so it's really helping we're really more of a coach we're not really there, telling them what to do.
- 01:02:52we're really trying to help them tell themselves what to do and that's the goal there.
- 01:02:57Really it can be incorporated into any behavioral intervention and many of you probably use this technique, whether we're trying to improve people's diet exercise and so forth.
- 01:03:08The spirit of motivational interviewing is one of collaboration so again we're acting as a partner, rather than as a director.
- 01:03:17evocation so trying to draw out the patient's own motivations and own reasoning, for not smoking, whether it's that they want to.
- 01:03:27You know, be healthier and more time with their families, not smell like smoke, whatever their reason it's that's what we're trying to help them draw out.
- 01:03:34And then autonomy so kind of empowering our patients to take responsibility and really communicating to them that you know, this is not we're not able to do it for you, you have to you have to do it we're here to help, but they need to take responsibility.
- 01:03:49key principles and then we'll then we'll wrap up.

- 01:03:52expression of empathy so really trying to see it from the patient's point of view, and this is why I spent some time on that slide earlier talking about the things that people might.
- 01:04:01Might perceive as benefits of smoking right, we really have to understand their point of view, so that we can empathize with them and really, really help establish that therapeutic connection.
- 01:04:12Supporting self efficacy so again, this is helping them to believe in themselves right so that giving them the confidence that they can do it now we're there to help.
- 01:04:22rolling with resistance so again kind of dealing with the inevitable roadblocks the inevitable relapses not fighting against the patient, but rather working with.
- 01:04:33Being a partner and then developing discrepancy so really helping them see the differences between their current behaviors and where they really want to be.
- 01:04:44in helping that making that be a motivational tactic so I'll just finish up with the key take home points cigarette addiction is an acquired chronic brain disease that is profoundly influenced by environment.
- 01:04:56And for our best results we want to always combine behavioral and pharmacologic treatments, using a team based approach.
- 01:05:04So if time permits I'd be happy to take any questions comments and discussion and if you'd like you can take the challenge of finding the uva faculty Member hiding amongst this group of Yale people thanks so much.

Unknown Speaker

01:05:19Thanks.

UVA Chiefs

01:05:26open it up to questions in the chat and questions here in person.

- 01:05:31i'll get it started just wondering if you could kind of give us maybe a little bit of both sides of the mental cigarette added his band like why, why should be for your.

Steve Baldassarri

01:05:46yeah that's a great question so basically mental has been has been determined to be more addictive so menthol cigarettes can be harder to quit.

- 01:05:59they've been more linked to teach young people to African Americans so there's been a push for a long time to get rid of mental and sort of.
- 01:06:11kind of historically speaking on previous to this, there was the industry was using sort of flavored cigarettes more overtly so like candy flavor and things that were attracting kids and so.
- 01:06:25So menthol is was thought to be kind of a continuation of that but, again, because it's got sort of like anesthetic properties, it makes it, it makes it just easier to there's easier smoke for many people.
- 01:06:39And so that's the reason why that's come under focus recently and it looks like the government is likely, going to be taking some action to ban mental.
- 01:06:51That is probably going to be subject to to legal action so forth, so I would not anticipate any changes in the short term.

UVA Chiefs

01:07:03you're going to have is you know you sort of alluded to this with your story of the patient who ended up having kind of worsening constipation after quitting.

- 01:07:11And then you know you kind of mentioned in your slide kind of different ways that people use cigarettes to sort of address.
- 01:07:18kind of various problems range from depression to concentration, do you ever.
- 01:07:22Have any experience, or is there any movement to sort of like Thai patients like address needs to have more specific treatments so.
- 01:07:31If someone's worried about weight gain it wouldn't just be nicotine replacement but it'd be that plus maybe a you know gop one agonist to sort of get ahead of the problem, any comment on that or.

Steve Baldassarri

01:07:43yeah I think it kind of links in with this sort of team approach, so I think we always want to try to customize the treatments to what our patients are needing so if it's you know.

- 01:07:55If its weight is a concern you know you may favor something like bupropion which is going to contribute to weight loss.
- 01:08:03If there's you know other issues, I think it was the main sort of thing that we wanted to do to really get on top.
- 01:08:10And out in front of the other comorbidities before we you know we can do it in concert but usually try to get get them optimized as much as possible, before we start.
- 01:08:20With cessation attempts it's just going to make it a lot easier and give us a lot more success if they're already in a good state right, so if they're medically good or psychiatrically good they're socially not stressed.
- 01:08:35we're just going to have a much better time being able to help them out success.

UVA Chiefs

01:08:42Especially I have in the chat from Dr Wolf, he was wondering if you just comment on taping associated lung injury and sort of work, and you know regards to incidents, and you know underlying cause.

Steve Baldassarri

01:08:55More so they've been a there was a prior to the pandemic there was extensive investigation of the veil being induced lung injury is called the valley.

- 01:09:05And what was determined was that a large number of the cases involve the use of illicit.
- 01:09:15thc E liquids, so people were making these thc is the addictive chemical in cannabis, but people were using developing thc and it was.
- 01:09:28They were mixing it with vitamin E acetate which is like a cutting agent to thicken it, and that was uncovered and many of the of the samples that they that the FDA and the CDC examined, then there were some models some sort of animal models, showing that vitamin D acetate.
- 01:09:48can cause acute lung injury, so a lot of the.
- 01:09:52valley epidemic has been attributed to specifically to vitamin E acetate and whether there are other harmful chemicals.

- 01:10:03relating to that is not totally clear, but a lot of that seems to have been resolved.

UVA Chiefs

01:10:11We have another question in the chat.

- 01:10:15When a person is starting chantix I hear you say they were past the same time how often would you recommend them wearing the patch while taking chantix.

Steve Baldassarri

01:10:26So I would say, as a general rule of thumb err on the side of continuing treatment for longer periods of time, rather than shorter periods of time, and this is again kind of getting to the fact that we know that this is a chronic brain disease so the changes are long lasting so.

- 01:10:48I generally you know say you can there's no rush to discontinue any of them really if the person becomes smoke free so mean they go into a period of smoking abstinence.
- 01:11:00that's a huge win and there's really no downside necessarily to stopping the meds I would say, if and when you're going to start tapering off.
- 01:11:11It should be at a time again when everything's optimal for them so when they're medically psychiatrically and socially optimized and if they want to come off.
- 01:11:21That, I would just do everything gradually and slowly because, again, a lot of people, I think, a good way to conceptualize this addiction is similarly to the way we don't we think about opioid use disorder.
- 01:11:33Where the main thinking now is that the vast majority of people need to be on some kind of medicine for life, and I think that's likely the case, especially with our patients for sure we're representing a more addicted subset of the overall population.

UVA Chiefs

01:11:54Well, thanks so much for Q amp a as well as a really fantastic.

- 01:11:59super thorough and I think it's just such an important topic for so many of us so really appreciate your time.

Steve Baldassarri

01:12:06you're welcome thanks so much for having me on.

Unknown Speaker

01:12:10And do I get bonus points I found that drew.

Unknown Speaker

01:12:12me yeah.

Unknown Speaker

01:12:17All right, take care guys.