Please stand by for realtime captions >> Please stand by for realtime captions >> This presentation is behavioral addiction. I am delighted to talk about the behavioral addictions. I have no disclosures that are relevant to this presentation . Just a quick outline. We will talk a little about the history because there is an interesting way that behavioral addictions have entered the DSM. And the impulsivity and compulsivity. And then we will talk about some specific types of behavioral addiction such as gambling. And hypersexual disorder. [Indiscernible]
It is less common that you see in individuals, if you are not a psychiatrist you may be more likely to see these patients who are therefore liver abnormalities or, profound hyper cholesterol bulimia , where other physical things or how they cross into the radar. They're less likely to seek direct addiction treatment than someone with like an alcohol abuse disorder. That brings us to the end.

It got more confusing to separate out. That is why we are thinking about it like a substance use disorder because it needs to be in that category. The only one that is official right now is gambling disorder. There is a section in DSM called conditions for further study, this is allowing researchers to get more research-based literature . The one that has elevated to further study is Internet gaming disorder. The other behavioral addictions, while there is some literature, I'm thinking work addiction, even something like tanning addiction. The workgroups often wasn't enough to elevated for further study or a DSM official diagnosis. There's still a lot of work we need to do to get more research and consensus on what the criteria are and what they look like but there is consensus that this neural circuitry is changing. I think that's important to realize is that the youngest area of addiction science is how do we classify the behaviors and a lot of them are not currently classified in DSM. So the essential features of a behavioral addiction are exactly what you would see with a substance addiction. We are seeing that the person is unable to resist an impulse or drive and that is resulting in Carme to them self or someone else. So someone with continued use despite adverse consequences. So they are seeing harm but they can't stop the behavior. Impulsivity versus compulsivity is an interesting concept to think about because you can see people at both ends of the spectrum. They are similar in that , in both cases people are unable to refrain from a particular repetitive behavior. It's just kind of coming at it from opposite ends. Impulsivity, someone is driven by this, a proactive thing that they feel kind of aroused or they want to be gratified in some way so they are driven forward to do that behavior. Compulsivity is more about, feeling that you had to do it to help with anxiety or self-medication, or to help yourself feel better. So one is kind of the fun way and the other is kind of being driven by anxiety and feeling stressed out. This is similar to the idea that relief cravings versus reward cravings that some people have a craving to drink or use because they want relief while others want that reward or that high. So it's kind of that same dichotomy. We really consider, we think of a dimensional approach when thinking of looking at each disorder. Each disorder can have components of either compulsivity or impulsivity. So we kind of think about which part of the spectrum is the closest to? So something like borderline personality disorder, we see a lot more impulsivity than compulsivity, but something like excessive compulsive

disorder, that is defined by compulsivity. You can look at each disorder and try to see, for the typical patient, how much is impulsive behavior . So this is just showing it in a different way. We do see gender differences, we tend to see men having more body dysmorphia especially in the bodybuilding community. Gambling, we see more heavily male involved in Internet addiction. For women we see more things like kleptomania, anorexia, you do see some gender differences among these different types of behaviors. So let's take a moment and we will dive a little more specifically into gambling disorder. On the spectrum, this is classified a little more towards the impulsive side. Also to say for a particular person they could also be presenting with more compulsive features. It's interesting to try to get a sense of their internal psychology as they are engaging in these behaviors. Do they feel like they are driven to do it through anxiety or are they like reaching for that gratification. That's something I explore with my patients for every type of addiction. You can see personally what they are driven by. In terms of gambling disorder, they have an impulse control disorder category. They renamed this as gambling disorder and moved it to this new substance related and addictive disorder category. So now this is added, this is everything else in the category. They are all substances specifically and then gambling disorder is the latest condition. In terms of what you see with the clinical presentation, it's basically the DSM-V addiction criteria and that's what we are seeing for most, we are still using the core criteria and some of them are modified or additional criteria or added . For gambling there are a couple specific things, that is ideas such as chasing one's losses. We will talk more about that, people get into kind of a frenzy when they are seeing that they are losing so they will start chasing and escalating the behavior to try to recoup those losses. They will also like to conceal the extent of his or her gambling, that's very common. You see that with all addiction but it's very prominent with gambling disorder so that's why it's a separate criteria. We also see relying on others for money and feeling distressed. So kind of tying that behavior specifically to emotional distress and emotional dysregulation. We do have specifiers of episodic or persistent. These phases are helpful to think about because with gambling disorder you do see people in different periods depending on where they are. So if they are doing well during a particular period, that is a winning phase and they will present differently than if they are in a loss phase. Most people with gambling disorder will progress through these faces because the house always wins right? You are never going to walk away being rich from gambling. So the more aggressively people do it, you will see the move through these faces. Lost, then desperation, then hopelessness where people start to be a risk for suicide and more serious complications. In terms of the pharmacology of gambling disorder, again the same pathways as all the substance disorders so we are seeing a fax on dopamine, serotonin, all the traditional things . Dopamine would be the primary thing because gambling releases dopamine in the reward pathway. So that is the hook that people are seeing, as you got in your neurobiology lecture, the way the addictions develop his repeated use over and over, so they keep seeing that large dopamine spike over and over and the new proteins are formed that are longer acting. Those go to rewire different parts of the brain and start to change your prefrontal circuits and that's when you see the impulsivity and compulsivity in the things we talk about with behavioral addiction. So gambling follows that same pathway so it's all

that dopamine and reward pathway leading to prefrontal cortex dysregulation. And it looks similar to other substance abuse disorders. In terms of epidemiology, there is a lot of money and gambling, so it's legal, so there is casino gaming and also a lot of online and various forms of Internet gambling that are legal and that's a murky world. Sports betting , sometimes it changes state to state. This is really big business. Problematic gamblers themselves tend to get into a lot of financial problems, so the average problematic gambler will have up to $40,000 as an average amount of debt so it's a huge financial stress on people. More so then we see for other types of addictions or use disorders. Also just a huge amount of time spent, on average 25 hours per week. Of course we are kind of in this new electronic era, we are seeing a shift in the access and availability to gambling which is of course going to change people's views and patterns. There is less emphasis on physical locations like casinos and a lot more online, which makes it very accessible. Easy to do from your home and people can stay up all night on the Internet gambling and in go to work the next day which is kind of easier to do than driving to the casino. So just realizing that it is important in having those conversations with patients, like where is the gambling available to them? It's also big business in terms of on the other side, on the business side they are really trying to capture people with online gaming because this market is exploding so they are having all kinds of clever tricks with apps and ways to keep people engage. So just being aware that there is a whole technology to try to get people to be gaming and that's very difficult for people who have a problem. I was pointing out with this article, there are so many interesting, things that can happen. If there is not enough casino taxes being taken in, it can affect the programs that are funded by that and those are often substance use disorder programs. If this fascinating thing where if casinos make less money we can have problems finding our substance use programs. It's an interesting political whirlwind to think about. As I mentioned before, there's lots of state regulations and differential rules, it's important to know what's available in your particular area. Some states have casinos while others don't and others have to be online. As we mentioned it's just more available now than ever before. So in terms of a screening tool. The library test is kind of the tried-and-true test for gambling disorder. So the lie that test , is it have you ever felt the need to bet more and more money, or have you ever had to lie to people about how much you gamble? So it's 99% sensitivity and 91% specificity. So it's a pretty sensitive test and that's why this is part of the criteria. This hiding it is so central to gambling. So let's take a dive into just a few of the cognitive distortions because they can be very prominent in gambling disorder and it can really , it's important to discuss with patients. It's interesting because these are all human things, and they just get exaggerated when you are seeing in the context of a gambling disorder. So human brains tend to have this bias towards distributing winds to skill, which is very helpful for our low self-esteem. So if the gambler is able to get a Win and they say that's because of my skill that if I lose it's just luck of the draw, why that's good for our self-esteem and not good for your pocketbook, because you will keep going thinking, I'm skillful if I'm winning and I'll keep doing. People also tend to wrongly believe that a series of losses increases the chance of a win. It will be this idea that you are due for a Win , when actually all of those are independent events so you can't

move them together. Again it's a cognitive distortion that all humans have and it really plays out in this arena of gambling. The same with the idea of near misses. The idea that you have the entire lottery number except one was off so you are like, I was so close. But the point is that was not the right number. We feel like it was so close. So if a gambler almost gets the large pot he will say, next time I'm going to get it and that's a cognitive distortion. There's also this idea of the sunk cost effect, which is helpfully illustrated in this cartoon. It's this idea of like chasing your losses. The bog is -- it's kind of like the I'm so far down I have to keep digging. It's this whole idea that I'm so far in, I can't walk away. This would be too upsetting so I have to correct this. So I will stay in and get it corrected. So the gambler will sit there losing more and more money in thinking cost into it. This is another distortion that we have. I'm going to skip this because I believe Doctor Lavonia did this. The idea is to have you guys say which you prefer out of these two options. A short gain of 250, verses a smaller chance to win $1000 versus a sure loss of 750, and a bigger chance to win something. This should be 50-50 on average because mathematically they are equivalent, but in reality, this is showing you that it's actually mathematically equivalent. In reality we get more worried about negative stuff so if we hear it's a sure loss of a large amount we will do everything we can to avoid that so we will take bigger risks to avoid definite losses. So if there is some chance I can avoid that big loss I'm going to take the risk to try to do it. I don't want that big loss. So it's another part of human nature that can lead us down this pathway. The last cognitive distortion is this idea of superstitious beliefs. You will see people, and you see this a lot in baseball. Wearing particular socks or having your lucky jersey on. This is in all aspects of human society. For gamblers they will be like, I have to sit at this table or go at this time, it's this idea that if you winter something good happens, you associate something in the situation with that Win and then you want that thing to be present every time to re-create that Win . This is something you will see fairly commonly. So selective memory is another interesting one. They will remember their win is but they will forget about their losses. It takes some cognitive effort because in our brain we tend to be more attracted to the negative things. This would be like someone in the winning phase and they are not even thinking about their losses and they are riding high on this idea that they have been winning a lot. This is a big one, totaling winds without correcting for the amount loss lost. So adding up the amount they won but not taking into the account all of the money that went out that night. So obviously these are ways to think of the problem is less severe than it actually is. Telescoping is also interesting, it is this idea that something that is naturally occurring, like a win will happen sooner rather than later. It's just thinking I'm lucky so that win will happen sooner. Reference is thinking that a win will happen to oneself rather than others. It's almost like a self-centered way to look at it, like the universe owes me or I'm feeling lucky. You could almost call this like law of attraction, some gamblers can really get into this mindset where they are like, it's going to happen to me soon etc. So all of those were the kind of distortions and cognitive things you see around gambling. You can see them with other addictive disorders but it's so prominent with gambling because so much of it is engaging in actual behavior. It's interesting to get a sense of what's what thoughts are driving them in one of the underlying beliefs

contributing to moving forward. But even if you examine those beliefs, if they have a gambling disorder they still think that prefrontal cortex is this regulated. So you can have a conversation about it but it doesn't necessarily mean that they can stop their impulse because they do have issues with their willpower. So it's helpful for therapy but we need a larger treatment plan in general. For gambling disorder, just like other substance abuse disorders, we don't have anything that is FDA approved or specific but we tend to use, a mix of behavioral therapies , family therapy can be important because there is so much financial stress. Almost always there is financial stress on the family and spouses are upset. Often family therapy is really important. In terms of pharmacology, the opioid antagonists, and SSRIs have been the most studied and we will look at a couple slides on that. There's also twelve-step groups specifically for gambling, so there is gamblers anonymous, that is those kinds of fellowship groups . So the way we would pick the pharmacology is going back to thinking about, is this a more impulsive or compulsive person. When we think about that spectrum. Gambling disorder might be more toward the impulsive side overall but for a particular person , we want to find out if they are more impulsive or compulsive. If you are hearing a lot of impulsive markers in the way that they gamble, then you would want to start with the opioid antagonist, these are the ones we would normally use. This blocks the opioid receptors, decreasing reward cravings like I mentioned earlier. That idea of chasing after that high or that reward. The idea is to antagonize your opioid system so you are blocking that euphoria. Similar to what we see with alcohol use disorder, this is best for people with a history of alcoholism. They tend to have, it looks like the opioid receptors are specifically responsive to this when they have that family history of alcohol. You see that with people who have alcohol abuse disorder. There opioid system is very involved in their alcohol use disorder. So if you block it, you are reducing a lot of the pleasure. If you are hearing that someone is wanting to gamble looking for the rush and the excitement and they are intrigued and it's a high for them, think about antagonizing the opioid receptor system to reduce that pleasure. Basically they will go gamble and will get as much out of it. If we think the individual person is more on the compulsive side, driven by anxiety and stress and they want to gamble to relax and get relief from the day, now we are looking at SSRIs. So this would be Fluvoxamine and others . None of them are specifically FDA approved, these are just some of the ones that are in trials. But there's no reason to think any SSRI would be better than another one, so you can pick whichever one you like. The idea here is you are targeting that anxiety and that negative aspect. In order to reduce the self-medication. You don't want them feeling driven to do it because of these negative feelings. Obviously this makes sense if they have reoccurring depression and anxiety. If you are getting some depressed or mood disorder type picture associated with gambling, consider SSRIs instead. And just to point out , there is an interesting thing that can happen with SSRIs, so this is looking at Sertraline for alcohol use disorder. This is something we try to watch and be careful about. It looked like if you are a type one drinker, that an SSRI would help. But if you are a early onset drinker or type II it can actually worsen it. The idea is that usually these type I and type II are around 25. So if you are over 25 this is usually the story of someone who is kind of depressed or anxious or has something going on in their life and they start drinking

to cope with that and develop an alcohol use disorder. The people before 25, are more likely to have obviously started in adolescence, when people start using in adolescence it's more correlated with conduct disorder, behavioral problems and other things going on. So it looks like the people that are before 25 might be a little more, just their neurobiology is different, probably because of starting so early is a big part of it. We find that SSRIs increase their cravings. So you want to be careful if you are adding SSRIs to anyone with substance abuse disorder because if they were that early onset site it could increase their cravings. It's just something to watch for in all substance abuse disorder. Moving to Internet gaming. So this is one that classified in DSM-5 as a condition for further study. It was not at all in DSM-IV so this is included. This is the addiction criteria, plus, having deceived family, therapists or others about the amount of gaming and using games to escape or relieve negative mood. You can see it's similar to gambling where there is a specific criteria around negative mood or aspect if they can escape from people. In the clinical presentation, what we see is this is actually worldwide, most common in young males in Asian countries especially China and South Korea. There are some people who say there is an epidemic of gaming addiction among male adolescents. There's actually been a lot written in some of those countries about concerns that people aren't socializing enough, they are not dating or even worried about the birth rate and things like that. There is a lot of concern in certain Asian countries about the amount of gaming but adolescents are doing and it's largely males though some females as well. Most of the gaming when we are talking about this, and people are gaming for 14-16 hours per day, it's often playing these MMORPG , massively multiplayer online role-playing games, those are associated with the most impairment and take up the most time. It's really because it's like entering another world so people are basically an avatar, they are on a team, I have a picture of it here. You can see it's very complex where you are basically a character and you are running around this world and doing things and slaying dragons and earning points in all kinds of stuff. It's fascinating because for some people it becomes like their social life. There are other characters in the games that they are playing with and they feel indebted and they feel like, I have to get on so I don't miss out on stuff or I have to help this team member. People almost gets socially committed to having to be a part of it which is interesting because it's another way to pull the men and keep them addicted. This idea that they are participating in this other world. This is an article from a few years ago, it's funny because the title says United Internet gaming disorder rehab but this is an Internet café where people are actively gaming. This article is interesting because it talked about, it was a very therapeutic community style re-pad. Rehab. It was run by people from the military. It was basically a boot camp, they would get them up and have drills, the article was talking about how it was like kind of getting these young men whipped into shape at this rehab center. I would say probably not the best treatment methods, but it gives you a sense that China is really struggling with this. They are looking at different ways to treat it. It is more of a bigger presence in their culture than we have here in the West. These are the types of Internet cafés that they have in China. Some people will be in them 24 hours a day, they will sleep in these chairs and just do it nonstop. So that concludes gambling disorder. Moving into hypersexual disorder, this is not listed in the DSM-IV or five, but we

included here because it's so close to getting into DSM-5, at the end it was felt that it just needed a little more research. It was felt that it didn't rise to the level yet to make it a condition for further study. It is thought that it would be the next behavioral addiction to enter the DSM. The person that has done a lot of work on this is Kafka, that is his article at the bottom of the slide. This is his criteria that he has proposed that most people except. As the standard criteria. If this idea of having these recurrent sexual fantasies, urges and behavior, and then they are taking a ton of time. So your nonsexual obligations end up getting put to the side. As we see with the behavioral addictions there is a big emphasis on negative aspect and negative mood. So people are doing this is self-medication for stressful life events, dysphoric mood and they are attempting to control the behavior but they are not able to. The key here is this would be different than someone who is just very sexually active because of the , they are feeling dysphoric, they feel they have to go do it and they are ignoring other stuff. So it's more than just having a high or an active sex life. The specifiers, which type they are engaging in, is this masturbation, pornography, telephone sex, strip clubs etc. You can see these were written earlier because I don't think telephone sex would be a -- be one at this point. There has been a number of controversies about the criteria but everyone in the field pretty much agrees there is a true sex addiction meaning there is this out-of-control repetitive behavior that can have an happen. And the difference between a sexual account are being pleasurable but it's addictive behavior. But instead you are managing something. You are controlling your emotions. Using sex to medicate and modulate yourself which is very different than kind of just having a sexual encounter that is pleasurable. Interestingly people do have poor insight. It's helpful to get them to describe the ways that they are arriving at Saks, how they are negotiating it and how it fits into their day because they might not realize how preoccupied they are or that they are being driven by these negative states. So for hypersexual disorder we are hoping on the next round it will be able to make it in because once it becomes a condition for further study it's much easier to get funding dollars for it and move it through all the classifications for research. So rapidfire, we will go through the other behavioral addictions which are further down on the list but definitely on the horizon as well. We were talking about Internet gaming disorder which is specifically playing those games those MMORPG games but also others, Internet addiction would actually be a broader concept, so that would be separate. What we see with Internet addiction, it's often with a psychiatric disorder, depression, anxiety, mood stuff, so people can go on the Internet as a way to zone out or numb themselves. And the Internet addiction task, a classic in the field, if you want to screen people for this it would definitely be the easiest screening test to use. Food addiction is also an interesting one. This looks to be very distinct from an eating disorder. This is something separate. They use the Yale food addiction scale for that. It's an easy way to look at it. So for anorexia they call it letting the tiger out of the cage. Because anorexia is a similar concept. You have to eat food so you have to reenter the struggle three times a day. You have to re-encounter food three times a day. So a different way of working with the person and kind of thinking about it when they have a food addiction. Exercise addiction is another one, we think this might have to do , they used it to say it was endorphins that work released and that was the idea

of runners high. But they are thinking it might be more related to the cannabinoids system. But we know that prolonged periods of exercise can cause this elevated moods state and long distance runners frequently describe this. People can get addicted to that euphoria. Basically they are exercising despite adverse consequences. They are ignoring other parts in their life and just exercising so much. There was a marathon runner who said, people would say you are so dedicated and disciplined because you are out running for hours every week and he was like no, it's the opposite. You are dedicated because you are going to an office every day, I get to just go escape and run so he looked at it as an escape. So you can see that's how it can become that addiction when people are looking for that euphoria. For this criteria we just use the modified SUV criteria at this point. Love addiction is a very interesting concept, you can imagine if you think about somebody with bird line personality disorder, --borderline personality disorder, there is a lot of attachment issues. It's interesting to think is this different from borderline personality , or is there actual addictive circuitry that's being creative it looks different than something a personality disorder. So kind of just thinking about this pathway. The idea for this would be that the person is addicted to the falling in love part. So the lust is one part when you are sexually attracted to someone, then falling in love has its own chemical cascade associated with it in your brain. You become bondage, you become attached to the person and if you continue to stay together it settles into kind of a much quieter call state where you are just kind of like paired and in a relationship. So people with love addiction, they really like the falling in love part, so they will get the butterflies, the honeymoon phase, and once that phase is over they are not happy, in the settled stable phase of the relationship. It's different chemicals and brain state, at that point they will break off the relationship and look for someone new to get back into the falling in love state. So that's the idea of it. Really interesting with more research to see how does this combine with some of the other disorders that we look at. The people studying this say that, as with many things, this specifically looks to be related to conflict attachment or trauma in childhood. Also thinking about shopping addiction. It's been called compulsive buying disorder, some of the people researching this are preferring that term for it now. This one you tend to see among women in developed countries more frequently . Obviously because having extra finances and time on your hand and not having anything particular you have to do, you go shopping and spend money. We see a 2-8 percent prevalence in the U.S. There's a great movie on this but I can't remember the exact name. There's been some great per trails in the media , just of this kind of disorder. You see someone like buying to relieve negative affect. Feeling upset about things and going out shopping to feel better. I think just like any of these behaviors all of this -- all of us use this a little bit. But can it just regulate the prefrontal cortex. Tanning addiction is interesting. I had to put this in, this is a very famous case in New Jersey. She's called the 10 mom, she got famous maybe 10 years ago. She was obsessed with tanning but actually got in trouble because she brought her daughter to the tanning salon and was trying to have her daughter tan as well and it turned into this PR media friendly. Frenzy. The whole idea with this is that tanning can be addictive to people because we think it releases endorphins. So that's why people love to go to the beach and sit under the sun and all that. It does give you

that cascade of endorphins. Interestingly, using [Indiscernible] Can trigger withdrawal. So this is that same addictive pathway. And then work addiction, I'm just a -- joking here. We definitely have a workaholic culture here in the U.S. There's some statistic where we work harder than nearly every other country in the world. The amount of pressure we put on American workers and productivity. The idea with a work addiction would be that this person is kind of fully consumed by work but at the same time it's all based on stress and negativity. It's not that they are loving their work. They could be a workaholic who's doing it for pleasure and having fun, work addiction would mean , you are kind of going down this rabbit hole but you feel pressured and you have to do it and you are kind of in the midst of it and can't stop. We definitely need more research to figure out what of those parameters and is this a true addictive disorder or is this more stress and anxiety. So this is one that definitely needs more research. Kleptomania, could potentially be an addictive disorder. It's interesting to think about . It has some of those components. The idea is that people have this building sensation where they feel like they have to do something. It's this build up and they get the release and the relief from it by going in actually doing the kleptomaniac act, stealing something relieves it. That's why there are components that are thought to be connected to addiction although it's not classified as that currently. Just something to think about as we do more research. This is also one that is very secretive, I can't remember the last time I even thought in clinical practice. It's often because we don't ask about it. People aren't going to volunteer it. Usually you only find out about it if they've been arrested for shoplifting. This is one of those disorders, it's good to talk to people because it kind of secret. It's important to think about it because it has a high suicide attempt rate. It's one of those secret things, and people of all socioeconomic categories can engage in it and feel very embarrassed by it. It just doesn't make sense to them but they will be very secretive about it. I wanted to make a plug for this book, from Michael Asher, this is a really nice behavioral addiction book where it just goes through all these different categories. It tells you the latest evidence on each of them. In summary, the behavioral addictions overall just like the substance use disorders fall in the spectrum of impulsivity to compulsivity and it's important for each individual person, which and of the spectrum they are on. And Internet gaming disorder is a condition for further study. We know that psychosocial treatments work that we have much less data for pharmacology, a little promise with Naltrexone and SSRIs but we need more data and research for that. So thank you so much, here is my email, feel free to email me any questions, and we will go ahead and do the questions. So it's important to know you should use your polling feature for these questions. Don't answer in Q and day. Q and a

Which of the following addictions is included in the DSM-5 under substance related and addictive disorders . Internet use disorder, gambling disorder, Internet gaming disorder or hypersexual disorder. We will give you guys 15 seconds to answer so I'm just going to reread the question. Which of the following behavioral addictions is included in the DSM-5 under substance related and addictive disorders . Internet use disorder, gambling disorder, Internet gaming disorder, and hypersexual disorder. I will go ahead and give you the answer. So gambling disorder is the only one that is officially included right now in DSM-5. Research

shows that gambling disorder involves the strongest effect of which of the following neurotransmitters, dopamine, GABA, acetylcholine, and endorphins. And so the answer for this one is going to be option a, dopamine. While we know that these other neurotransmitters have more indirect roles, because most neurotransmitters are involved --involved with most addictions. While we know that these other neurotransmitters have more indirect roles, because most neurotransmitters are involved, we are really thinking about dopamine and the reward pathway and finally , that common pathway we see for all addictive hoarders -- disorders. If we have a behavioral addiction we are thinking there is a supra-physiological dopamine release. A big dopamine first and that's what makes all other circuitry's hollow after that. Which of the following medications has some evidence for the treatment of gambling disorder? Memantine, naltrexone, aripiprazole or clonidine? Which of the medications has some evidence for the treatment of gambling disorder? Memantine, naltrexone, aripiprazole, or clonidine? The answer for this would be naltrexone is an opioid antagonist. We find that antagonizing the opioid system for some people can reduce the euphoria and pleasure associated with gambling so will help kind of cut the cravings for gambling. Memantine is used for cognitive dysfunction, aripiprazole is an antipsychotic and that's interesting because that can actually cause a gambling problem . So aripiprazole is a third-generation antipsychotic which means it's a partial dopamine agonist. The rest of the antipsychotics are dopamine antagonists, but aripiprazole is a partial agonist . Some people when they take it a have low dopamine levels in their limbic system and aripiprazole will actually agonize the dopamine. You see a gambling order develop and some people who are on aripiprazole so just an important thing to keep in mind. Certainly not a treatment for it. And clonidine is a blood pressure medication used for opioid withdrawal.

I will go ahead and stop there. Thank you so much.
[Event Concluded]