>> This presentation is entitled, "Cannabis." I will now pass it off to Dr. Carla Marienfeld to begin the session.

>> Hello and welcome. I will be talking about cannabis today. So, I don't have any financial disclosure that are relevant

to-r for ACPM interests. The learning objectives, by the end of this talk today, you should be able to describe the basic

epidemiology of cannabis use disorders, as well as changes in around harm perception and use over time; use basic information

about the routes of administration, pharmacodynamics and toxicology, in order to understand the physiologic

effects of monitoring. You should be able to characterize the effects of use of marijuana, differentiate between cannabis

use and a cannabis use disorder, understand the underlying neurobiology and how this impacts the physiologic effects

and drug design when we're thinking about treatments, and compare various treatment modalities and targets to

understand current and potential treatments for cannabis use disorder.

So, to begin with, we're just going to talk briefly about marijuana. So, there are some pictures here showing the

marijuana plant and some of the buds that have all of the different resins and parts that are often the most interesting

to folks.

So, marijuana is the cannabis plant, and it comes in two common varieties, Sativa or Indica. They're a subspecies of

the hemp plant. Most hemp manufactured commercially does not contain THC the psychoactive component. But marijuana is

actually quite common throughout the world.

I'm just briefly going to mention here synthetic cannabinoids. These are largely less relevant now, with the

exception of a few populations like military populations or other people who don't want things to show up on their urine

drug screen. But for a period of time, this was a significant and rising problem in our country, and it was often that there were

synthetic cannabinoids that were sprayed onto vegetable matter so that they looked like marijuana.

They were labeled "not for human consumption," and they were sold in various headshops and places like that as a, quote, legal

high. And they really kind of got out of control up to the point that they were manufacturing all these

different compounds and, you know, you ban one compound, and they would create another one that was structurally different

but still acted on the cannabis receptors. And so they finally had the Synthetic Drug Act and Synthetic Drug Abuse Prevention

Act that basically said we ban all of them, so they said they're salts of isomers, they're salts of isomers, et

cetera, et cetera. And so those are largely less available. And when you look at things like the monitoring future study or other

studies like that, we see declining rates of use.

So now I'm going to talk a little bit about some of the epidemiology. And thinking about cannabis in the past, there were

certain ideas of cannabis. So changing ideas of cannabis have been quite rapid in the past two decades or so. You know, it was

once sort of this scary image that was created around somewhat racist ideas. Now it's something that's good for the economy.

It's good for your health. It's better than alcohol, you know, versus in the past, there was this sort of sensationalized

idea of marijuana, now it's super healthy. Now it's medicine, you know, versus in the past where, you know, we're

all at risk, et cetera, et cetera.

So, cannabis use disorders are quite common, upwards of 22 million users in the past month, and this is pretty much

increasing. Depending on the age or where you're looking, around 13, I've seen estimates like 9 to 17 percent or so of users who

use marijuana will meet the criteria for a cannabis use disorder. And this is just an interesting statistic, that

about 300,000 people, in the past year, have bought a prescription for help with their cannabis use disorder. So, there

is a population that recognizes that it's causing them problems and would like some drug treatment for it.

What's interesting is the increasing addiction risk that we see as people use marijuana more. So, of the people who use

marijuana, you know, the last one said 13 percent would develop a cannabis use disorder, from a study where about nine

percent of all people who use marijuana ever will become addicted or develop a cannabis use disorder. The risk increases

to 17 percent in people who start using in their teens, and upwards of 20 to 50 percent in people who are daily users. And

most daily users started using early on, so they sort of have a double impact on their addiction risk.

What's interesting, and I kept this slide even though it ends in 2013, because we do have newer slides that show some of

these difference things. But what's really interesting with this slide, I think, is how well it shows in the blue dots, or

whatever that color is, the past use of marijuana and how opposite that is to the red dots, which is the perceived

risk of marijuana. So, as youth increases, the perceived risk is less, and vice versa. When perceived risk was higher in the

'90s, we saw decreases in use. And so what we've been seeing lately is our society has much more tolerant in accepting ideas

of marijuana, and so we see infrequent use.

Upwards of 36 percent of teenagers think marijuana is harmless. 43 percent, probably this number is a little bit

higher now, favor legalization versus in the 1980s, when that number was only 15 percent, and in 1990s, where it was 30

percent. So, much more of our population has been favoring legal sayings, and there are certainly pros and cons to that.

And the harm perception is the lowest it's been in 40 years, which is what we're seeing with the increase in prevalence.

We also are seeing increasing rates of use across adolescence. So it's not just adults. And this is often a big area of

concern, because the adolescent brain is still developing. So, if you look at eighth grader, about 17 percent of eighth

graders have ever tried marijuana, and about half of all 12th graders have. If you look at past year use, you know, 12

percent of eighth graders have used in the past year, and 35 percent of 12th graders have, and then, et cetera, current use

in the past month is a little bit less. But it also is important to note that marijuana use has surpassed alcohol and

tobacco use in high school and [inaudible].

So, our first question, which of the following trends in youth from the Monitoring the Future study about marijuana use

accurately describes the changes in perception of harm? Which of these is true? Is it A, since the early 1990s, the percentage

with perceived risk of harm from marijuana has been higher than past year use? Is it B, since about 2009, there has been a

growing gap between decreased perception of harm and increased past year use of cannabis? The lowest past year cannabis use

was in the late 1970s, or the perceived risk of harm for cannabis fell throughout the 1980s? So, I'll give you just a

few moments to put your answer in the box on the platform, and then I'm just going to go through the answer choices.

So, since the early 1990s, the percentage with perceived risk of harm for marijuana has been higher than in the past year of

use. We did see a little peak in the early 1990s, where there was increased perception of harm and, actually, decreased use.

But then that started changing once we got into the 2000s.

Since about 2009, there's been a growing gap between decreased perception of harm and increased past year use of cannabis, and

this is exactly what we're seeing, the decreased perception of harm and increased past year use. So, this is the correct

answer, B. The lowest past year cannabis use was not in the late 1970s, and the perceived risk of harm for cannabis actually

increased in the 1980s.

So we'll go through some of the basics around marijuana. So why do people smoke it to begin with? It has some desirable

effects. Most people prescribe a mild high or euphoria and a sense of relaxation with short-term use. People feel

giggly and happy, and there is typically an increase sensitivity to external stimuli. People describe colors seem

brighter, smells for pungent or intense. There's often a distortion of time perception, which is kind of interesting or

pleasurable. But this was often the case with certain percentages of THS over time.

And I mentioned THS is a psychoactive component. It's the Tetrahydrocannabinol, and we see, over time, that the

marijuana that was sold or purchased had increasing rates of THC. This has dramatically increased with the legalization

of marijuana, where not only are flower or plant-based marijuana products with very high levels of THC, you know, in the 20 and

30 percentile, but the other edible and concentrated products [inaudible] and wax and all that kind of stuff can be incredibly

high, like 80-90 percent THC.

So we see the increase in potency, which does impact the effects of marijuana on people. We see different routes of

administration. So smoked marijuana reaches the brain within a few minutes, so smoking and inhalation is still a very

effective route for quick onset of action, and just like most drugs of abuse, the rapid onset of action is what's very

rewarding to the brain, and that rewarding, that simulation of the dopamine reward pathways quickly, that rapid onset, is

part of what predicts the likelihood of reward in the brain and abuse of the substance. The effect lasts for

one to three hours. It delivers a lot of THC into the bloodstream. It has relatively rapid effects.

Vaporized marijuana is quite popular nowadays. You don't necessarily have to have the smell. It's not as noticeable.

You can keep it in your pocket. It also has quite rapid effects. Probably not quite as efficient as smoked marijuana, but it

depends. You know, some of the vaporized products, they're quite variable in terms of what they can and can't do.

>> EDIBLES

ARE DRINKING MARIJUANA. THC, RATHER HAS TO BE EXTRACT.

IT CAN BE A SLOWER ONSET. Half-hour to an hour to have an

effect.
They tend to last longer.

Not as efficient in terms of THC delivery but some can have high potency.

This is looking at the distribution.

We see in the blood first and then it goes to the brain and then

the high perfusion tissues and more of the lower perfusion

tissues and then we see storage and fatty tissues which does impact things later on.

For example, heavy smokers would have a lot of

weight loss. They can have THC positive urine drug screen,

for example, as it comes out of the

fatty tissue. Toxicology testing measures the THC are casual users

that can be up to 10 days in the urine and 50% positive. For daily use

it could be in the urine for 30 days or more.

Making sure you collect them at the root and with

the new Hoever and all that stuff. I mentioned weight loss

will give you a THC spike depending on the person.

John Abbot on which we can prescribe gives you a positive THC test. The question about

what -- want typical give you a positive test unless you have an held an enormous amount.

For this questions it sometimes combined.

>> Most of the physiological

effects are adrenergic despite his

reputation of being an anti-lytic.

We see tachycardia, hypertension and orthostatic hypotension,

tachypnea, dry mouth, classic red eyes. Increases in appetite.

We see neurocognitive effects affecting short-term memory

impairment. The whole thing that if you

study for the test while high then you have to take the test while you're high

to remember it is not true. It can impair

judgment. And this can lead to other risky behaviors and it

can affect motor coordination and interfere with driving

impure driving is a hot topic. Does a lot

of talking about the effects of marijuana while driving so it

has direct effects in terms of decreasing peripheral vision and increasing reaction time

increasing your time/distance judgment.

Is the number one recorded illicit drugs in accidents

and fatalities. Smoking marijuana and driving increases your accident risk

by double come

and you have a 3 to 7 times risk of causing an accident. What's

interesting about marijuana is that it primarily impairs a lot of autonomic,

automatic, sorry,

automatic driving functions we do. If you pay close attention. Much of this

can be compensated with behavioral strategies the challenges often

when THC is combined with alcohol, which unfortunately, is

not uncommon. Alcohol impairs the things you do

to exert conscious control. The combination eliminates the

compensatory strategies that help with marijuana and resulting in

impairment that even at doses with the insignificant

for either drug Olympic they have a synergistic effect because

of their actions. It's a little bit controversial.

There is this idea of a motivational syndrome.

Which is comprised of mental slowing, planning ability, decreasing judgment,

concentration and memory,

apathy, decrease in pursuit of goals. This

is the idea that of adolescence smoke marijuana, they will develop

this a motivational syndrome as a result of marijuana. Is a

little bit of a chicken and egg it's a little controversial. Impaired

cognition occurs with marijuana and this is demonstrated in a number

of studies and impacts the ability to learn.

Certainly it impacts attention and concentration.

I can't tell you how many patients who

struggle with ADHD are not willing to give up their marijuana to see

if their intention and concentration improves. Decreases abstract reasoning and

decision-making as well as memory. The good news about the impaired cognition is for

adults, at least, most of these things are transient and

can resolve within -- recovery and

function -- there are some impacts on

physical health. Surprisingly we don't see the cancer risk we see with smoked tobacco with

smoke marijuana we see some impact on the respiratory system in terms of increased

lung function and increased risk for infections.

The risks are little controversial.

Probably the most consistent signal is with increased stroke risk or temporary

blood /brain constriction.

>> During pregnancy

the Endocannabinoid System is very active.

Plays a role in the control of brain maturation for the fetus, particularly

in emotional responses and there some studies looking at

being exposed to THC. The challenge is separating that exposure versus

other drug exposures or environmental exposures.

Drug impacts, et cetera. There are some consistent reports of potential neurologic

developmental effects. Children who are exposed to THC in utero often develop

some problem-solving skills, memory and attention problems and

have some deficits. Again, it's a little bit of a challenge

to sort out how much of this is THC versus other things

so, there is a little bit of controversy there.

>> Mental health effects. Again,

all of these are associations.

Correlation doesn't equal causation. What we clearly see with marijuana

is that long-term use is associated with higher rates of anxiety,

higher rates of depression, particularly in people who we think

are more vulnerable to developing psychosis. Marijuana use

increases the risk of psychosis in people who are

vulnerable to potential leads to an earlier development of a psychotic disorder.

In patients or otherwise honorable.

This is a slide looking at in green the bars the people he

used marijuana versus the general population rates.

>> We see --

the question is coming to the use marijuana as a reason to try

to cope with this or does it worsen those things.

In my practice when patients have appeared

of sustained abstinence from marijuana, we often do see improvements in

their psychiatric comorbidities. This is another slide looking at the latest

no cannabis use, some cannabis use and in darker color, heavier users in

greater cannabis use than once per month.

Even if people do not smoke cannabis that frequently,

we really do see increased rates of psychiatric comorbidity.

>> Several things are controversial.

Cancer is very interesting pick cannabis potentially has more

carcinogens than tobacco and yet we don't see those

higher rates.

There was a meta-analysis from 2020 for people smoking more than

one joint per day for one year or more did have increased rates

of testicular cancer. The lung cancer findings were mixed and there wasn't

really any clear evidence for other cancers. Bronchitis and

chronic cough. There was some warning for coronary

artery disease. Somewhat interesting mixed

data there.

how do we make the diagnosis? We use the same set

of our 11 criteria we use to make any substance use disorder diagnosis

just like alcohol or any substance, use does not equal

use disorder.

Anything we define in psychiatry using the DSM

criteria, which is what we use as the base, you

really have to have that functional impairment. This is by no means a

complete set of

problems are consequences someone could have associated with substance use,

but it's a

good starting list to think about we have physiologic considerations. Whether

someone develops tolerance or withdrawal. Whether they using more

than they intend to do or for longer periods of time. If they are unable

to cut back or control their

use. They continued using despite having psychological

or physiological problems with their use. If they have cravings

to use. If the use is impairing their ability

to do their major role obligations at work, school, or home. Using it in hazardous

situations or risky use if they have interpersonal or social problems associated with

their use to give up activities they would otherwise do in order to

use instead. Or if they

spend a great deal of time trying to use, obtain, or recover from

the substance you need two or more of these within the same 12 month. There

is no set duration. It doesn't have to be for 12 months

but they have to cluster it together. 2 to 3's mount. 4 to 5 is moderate and

62 or more would be considered severe. Cannabis withdrawal also has its

own set of criteria for making the diagnosis. It must cause distress for the

person or some kind of functional impairment. And then you need three or more

of the following irritability, anxiety, sleep problems,

changes in appetite or weight loss, depressed mood and restlessness, and one or more of the following.

More physical-ish symptoms. Abdominal pain, shaking, tremors, fever, chills,

or headache.

That's how you diagnose cannabis withdrawal.

>> Next question. Which of the following is a criterion for cannabis

use disorder according to the DSM 5?

Is it smoking more than one gram of marijuana per

day? And please put your answer in the block..

Feeling-the marijuana?

Being arrested for a cannabis -related crime?

Or problems with your role at work due to your cannabis use?

Which of the following is a

criterion for cannabis use disorder according to the DSM V.

>> We will go through the answers. A, smoking more than one gram of marijuana per day.

The amount of substance that somebody uses is not part of the criteria whether we are talking about marijuana,

alcohol, et cetera. It's really the role it plays in somebody's life,

not the amount sometimes the amount or frequency of use can

impact the role it plays in our life, but that's not a specific criterion. Feeling high

from the marijuana?

How you subjectively feel from a substance is also not any of

the criterion. Being arrested for a cannabis related crime. In the prior

DSM, we had different categories that were not very good called abuse and dependence.

In the abuse category there was a criterion for any

legal issues, but given what country you are in, what loss

you have, et cetera, summer being arrested. The legal

stuff doesn't map on from substance

to substance. Back criterion was taken out when they combined and created the category of Cannabis use disorder.

That's not it the correct answer is D, problems with

your role at work.

This has to do with fulfilling major life obligations that is impacted related

to the substance use disorder.

>> The basic science.

Cannabinoids,

there over 400 different chemicals present in the marijuana plant. Most

of the cannabinoids decrease neurotransmitter releases.

We have our own endogenous cannabinoids.

One is an origin from the word that means blaze

and then there's exogenous Kevin Na boys that we smoke or vaporize or eat

primarily from the city of a plant of cannabis

and we mentioned before the tetrahydrocannabinol, THC is

the main psychoactive component.

Cannabidiol is the other more famous ones.

It does not have any psychoactive effects come although it

certainly being studied for some of the intelligence and anti-inflammatory

effects et cetera. Delta nine THC. You can see how it's structurally

similar to the endogenous

cannabinoid chemical. That is involved in brain development.

The cannabinoid system is quite active early on in our lives and throughout our lives.

It mimics to where it decreases

some of the neural activity however, THC asked for a longer duration of. And has more potency than

our endogenous and enter mine.

>> The cannabinoid system has two receptor sites.

CB 1 and CB two are the most known and studied.

We have a lot of receptors in the cerebellum.

There is lower

density of the CB1 receptor in the brainstem. It's not that this

is related to low risk of things that occur in the brainstem like

respiratory depression. The CB2 receptors found in the spleen and the buttocks outlines and mask

cells. Probably related to anti-inflammatory effects. Some screening tools

we have I think this flight got in here accidentally. Okay.

CB1 receptor locations in the brain. As I mentioned, CB1

is in the blue dots and you can see the areas of the brain

that are impacted by the effects we feel with marijuana use

are where we see this density of the CB1 receptors.

They map onto each other quite well.

>> I mentioned most of the CB1 receptors

are in the CNS affecting motor activity, thinking, motor coordination, appetite,

pain perception, some immune effects.

Where as CB2 receptors, the lighter blue color, less

green color, armor broadly located throughout the body,

including the gut, kidneys, pancreas, skeletal muscle, bone, eye, tumors,

reproductive system, CNS, cardiovascular and liver. Kind of all

over the place they probably are responsible for more of the

anti-inflammatory effects.

>> The neurotransmitters I mentioned most

of these are turned down by the effects of marijuana. It affects various

neurotransmitters including two booming.

We do see increases in dopamine through stimulation to

the nucleus incumbents responsible for much of the

reward conclave, as well as the higher euphoria and

pleasure associated with use. We see some effects on GABA which is

related to some of the sensations of muscle relaxation and sleepiness the patients often who

take it for sleep at night and other reasons find beneficial.

We see this

decrease in GLUTAMATE which is

thought to be related to the sensation of relaxation and some

of the short term analytic affects as well as the impact

on memory.

>> Cognitive effects. I mentioned that marijuana does

impact learning and the retaining of new information. It has a lot of impact on

attention and concentration, including response, speed

and variability. And it impacts executive functioning

of the frontal lobe including working memory and verbal fluency.

This is a study looking at patients whether or not they are having any attention

problems or memory problems on testing. Based on how many times

they have been diagnosed

with a marijuana use disorder and you can see those that have the most diagnoses have

the greater impact

on attention and memory.

>> This was a somewhat controversial study

looking at whether or not there's actually an IQ drop

or if the memory effects are able to be,

if they go away over time. Studies in adults do tend to

show they do tend to go away over time pick

this is an interesting study that is worth knowing exists, showing that

people who use marijuana regularly at least

three or five of the assessor points did have upwards of a

five point drop in IQ again. It's controversial and probably not

worth going into the controversy now but it's worth knowing about this study.

>> Within 30 days or so, biological marker start to normalize. The CB receptor,

cannabinoid receptor in the brain starts normalize. We see shifts in

cortical blood volumes that are associated with the cognitive areas.

>> Then it becomes more controversial about learning among early and late adolescent

marijuana users where we do see

that in people who begin marijuana use earlier,

we see, for example in this study looking at

word recall, some deficits in word

recall versus people who started using marijuana later in life.

Brain differences in people who use marijuana early pick it affects the size, shape and function of the various

regions that are important for reward, motivation and cognition.

And it affects the efficiency of the interregional connectivity and adolescents who have earlier exposure

to marijuana.

As I mentioned multiple times, we see this increase in

CB1 from infancy through age 30. Most in

the latest changes are in areas of reward and motivation and

cognition. Do we say that some of the recovery at 30 days

and adolescents? It's contradictory and controversial.

Some studies show no lasting effects, other show some persistent deficits and in more than one domain

pick most study show at least partial recovery by 30 days, but

it's probably longer
than in adults.

>> If somebody has a marijuana use disorder are cannabis

use disorder of the treatment is challenging. We don't have

a lot of data supporting approaches. About 50% of treat meant seeking

people with a Cannabis use disorder are able to achieve

abstinence but upwards of 70% will have some sort of relapse.

This is partly related to the fact that we don't

have any FDA approved medications. We do

have a number of psychosocial treatments that can be helpful including
motivational enhancement therapy, cognitive

behavioral therapy.

Motivational enhancement being more of a mineralized

-- cognitive behavior therapy. Contingency management

which is our number one evidence-based psychosocial strategy from a
substance use disorder.'s

family-based programs. A number of different programs

are available.

Cognitive behavioral therapy, the idea is the thoughts we have influence

our feelings and our choices and behaviors and

it's hard to change our feelings but we have some ability to control

and change our thoughts if we identify those and correct them, we able to
impact how

we feel and ultimately the choices and what

we do.

And CBT we explore the positive and negative consequences of using
cannabinoids and identify craving quickly so we can

address it early on with certain strategies, et cetera.

>> Relax prevention therapy is an outgrowth of cognitive behavioral

therapy and this helps us to identify, avoid, and cope. A lot of the things

we hear about for coping skills are based on cognitive behavioral therapy and

relapse prevention pick the idea is to nip things in the early

to either prevent the relapse or if early laps happens, to give people the skills to stop it quickly.

>> This is a partial list of all the negative pharmacological studies are cannabis.

We do have a couple medications that had had some positive trials.

And acetylcysteine and antioxidants available over-the-counter.

It's an amino acid derivative. Leslie known to sit

positions for being a thing you get patients when they

overdose on Tylenol but it's also available as an over-the-counter

supplement. It restores normal activity in stock that

is part of how it might benefit patients with cannabis use disorder. Some of the pros of this is that

it did decrease use in nontreatment seeking adolescents which I think

is critical because most of the adolescents I see

come I don't see many but, they do not want to be there. They are there because

of their parents.

There was even decreasing cannabis use for nontreatment seeking adolescents however the studies in adults

were somewhat disappointing. It did not really decrease craving which was interesting

but we do see some benefit.

Even upwards of college age fixed sometimes we do

try this.

This is a review. The two studies that were positive, there are some

positive studies with Gabapentin, as well, which showed decreases in self-reported

cannabis use and had some improvement in withdrawal

symptoms. I do prescribed gabapentin for people trying to stop using cannabis and

are struggling with the dysphoria, sleep disturbance,

appetite changes, et cetera.

The and acetyl steam I mentioned helps

to correct Glutamate dysregulation.

It had some other studies in cocaine addiction. Gambling, OCD, et cetera we usually

prescribed as 1200 milligrams PID.

Image in the study by Kevin Gray showing the nontreatment seeking adolescents and

it showed decreased drug-seeking behavior

and increase the hater of abstinence from negative urines. It does

have some risk of nausea, vomiting, drowsiness, vivid dreams.

We do not see the anaphylaxis with the PO formulations looking mud with the

IV formulations.

>> Gabapentin. It's hypothesized the action related to marijuana is

by blocking the alpha Tuti calcium channel which modulates

GABA in the amygdala. Its FDA approval. There was

a study not too long ago showing that Gabapentin is 1% or less -- I forget

the exact number --

almost never used for its FDA indication.

Having said that there are pros and cons to Gabapentin. Controversial for

certain patients who use it for other things. In some patients, they do

find benefit for other substance use disorders.

Typically at doses of 1200 million Day -- 1200 milligrams a day

or higher. This was a study from

2012 with adults. Not just adolescents. It did show some

increase and negative urine drug screens, decreased subreport of cannabis use

and reduction in the mood disturbance, craving, and

sleep disturbances associated with cannabis withdrawal. It's well-tolerated. Most

patients tolerate it fine.

There have been some studies looking at the CB1 receptor agonist. These

are acting on CB1 receptor,

the same receptor that THC asked on. There is some

Cannabidiol substances. John Abbot all is been around for a

long time.

This is given for cancer, anorexia, things like that.

There are a number of various formulations that can be prescribed. They have mixed availability in

the U.S. Some of these are in some of these are not there are some studies looking at

whether or not these could help improve cannabis use

disorder. There was a study of the picks malls which is

one of the ones here that is a combination of THC and Cannabidiol.

And there was a study from 2019 was looking at treatment seeking adults for

12 weeks and combined Nabiximols with CBT,

cognitive behavioral therapy.

It was shown that this combination can

reduce cannabis dependence used cannabis 33% fewer days.

54, have the sample was able to cut their use by 50%

or more.

There wasn't a difference in the number of days of abstinence. There was a high dropout

rate the idea is this 121

THC ratio did have some benefits and it's probably safer

than illicitly obtained THC, for sure, and potentially

what people by even at dispensaries that is still not particularly

well regulated and isn't always what it says on

the label.

>> The next question pick which of the following medications has a trial supporting efficacy in

cannabis use disorder? Is it A?

B?

C? Or D?

>> Please put your answer in the box. Which of the following medications

has the trial supporting efficacy in cannabis

use disorder?

The answer is A, N-acetylcysteine? B,

Baclofen?

C, Quetiapine?

Or D. The answer is A, N-acetylcysteine.

Certainly, there been a number of trials at the therapeutic potential

for marijuana. And being helpful.

The deputy some trial showing support for nausea,

typically for cancer related nausea.

It's been shown to be helpful for glaucoma and

increased ocular pressure as well as some inflammation

including rheumatoid arthritis, Crohn's disease, ulcerative colitis and for certain

forms of epilepsy. There are number of trials looking at that.

The idea of medical marijuana and having some indications here is true, but

I think many of the indications

that are the justification for the approval of marijuana as

a medical marijuana in many states are not evidenced based. For example as a treatment

for PTSD or depression. That's not good studies supporting those,

for example.

So, we do want to make sure we follow the data and cautiously

recommend things when there is benefit,

but we are cautious and not overspending this to people who are struggling.

That would benefit from effective treatments in those disorders pick

>> In summary, cannabis includes marijuana plants and synthetic cannabinoids.

Cannabis use is common. The

risks of a use disorder increases with the early onset

of use. Marijuana contains more THC now than in the past, which likely impacts the risk for psychosis,

anxiety, and negative consequences associated with its use. Marijuana

does affect cognition. This is likely reversible in adults the

impact on adolescents is less clear.

Most of the treatment is psychosocial, but several drug targets are

being investigated.

Any questions or thoughts.
Thank you for your

time. I appreciate it.