SPEAKER NOTES

Addiction and Mental Health

Summarized by Thomas T. Thomas

"With the legalization of marijuana, it is important to discuss the effects of cannabis on mental health," says **David Kan, MD, DFASAM.**[1] He is a clinical psychiatrist specializing in addiction psychiatry, forensic psychiatry, general adult psychiatry, and psychopharmacology. He serves on the UCSF Department of Psychiatry Clinical Faculty, is currently the president of the California Society of Addiction Medicine (CSAM), and has private practice in Walnut Creek.

Dr. Kan has received multiple awards and honors in the areas of addiction medicine and clinical instruction in psychiatry, and has contributed to guidelines for physicians working in opioid treatment programs. He is also a forensic consultant on addiction and has testified in many court cases. He gives presentations on Smoking Cessation and Chronic Mental Illness; Stimulants, Psychosis, and Treatment; Cannabis; and Post Traumatic Stress Disorder.

DAVID KAN, MD, DFASAM

His talk on May 23 focused on cannabis, and he prefers that term to "marijuana," which has racial overtones with Mexico, in the same way that "opium" has overtones with 19th-century China.

The cannabis landscape changed in 2016 with the passage of Proposition 64 in California, which legalized recreational use of cannabis and possession of less than an ounce, as Prop 215 legalized medicinal use in 1996. Dr. Kan noted that experience has shown that medicinal use of cannabis decreased opioid mortality among patients, dropping by 5% drop at first and dropping even more over time. He also noted that doctors can *recommend* cannabis for conditions but they can't *prescribe* it, because there are no dosing levels and no pharmaceutical distribution, just patient supply through various dispensaries.

"The War on Drugs has injured more people than the drugs themselves," Dr. Kan said, citing the way criminalization has hurt people's life situations and future prospects. His organization, CSAM, supported Prop 64, and two of its members were on a blue ribbon commission for the proposition. They took this stance because, first, people were getting cannabis anyway and, second, legalization would provide tax revenues, of which 60% are now designated for treating adolescents—the group most at risk for developmental impairment from cannabis.

[1] Distinguished Fellow – American Society of Addiction Medicine.

Cannabis is a plant and a bud, available in many varieties and prepared in various forms for administration including edible and smokable. But Dr. Kan prefers to discuss the cannabinoid chemicals themselves and their brain interactions. Similarly, he would not tell a heart patient to brew up a tea of foxglove but instead take a dose of digitalis.

A new or infrequent user of cannabis—as opposed to a regular or heavy user, defined as using cannabis three times a week—will experience several things. One is what many users call "couch lock," where they just sit without moving, because the drug depresses internal motivation. Another experience is a sense of novelty, noticing and realizing things like the rainbows on a bubble if they're in the bathtub, because cannabis blocks the part of the brain that expresses judgment. A third experience is increased hunger, "the munchies," because cannabis stimulates appetite.

Dr. Kan noted that with regular use these effects tend to diminish, because the body builds up a tolerance and seeks a return to homeostasis. He said that a person with attention deficit hyperactivity disorder (ADHD) might try cannabis as a way to reduce the condition's fidgeting, but the drug won't improve the person's mental focus. Similarly, a person who is chronically underweight might use cannabis to stimulate appetite, but the effect may not last.

Adolescents like cannabis, he said, because it's readily available, feeds their sense of rebellion, and the effects feel good. Legalization will probably decrease cannabis availability, because regulation removes the incentive for illicit distribution, although adult usage will probably increase.

Past scare tactics to keep kids from using cannabis ("You're going to get in a car accident and kill people") were ineffective, because they didn't match user experience. But the reality is that adolescents who are regular users don't go out for sports, don't go on dates, and do poorly in school. Cannabis is a problem for young people because their brains are still developing: they won't reach maturity until age 25. Adolescents using cannabis regularly tend not to get the experiences and develop the coping mechanisms they are supposed to learn on their own. Dr. Kan doesn't recommend cannabis use until age 18.[2]

Regular cannabis use doesn't cause cancer, unless the person smokes cigarettes as well, and then it increases cancer risk. It doesn't increase anxiety, depression, or mental illness, although regular use as a teenager can increase the risk of developing schizophrenia slightly, from 1% to 2%.

There are about 60 different cannabinoid chemicals, most of them present in the plant in small concentrations. The two dominant chemicals are tetrahydrocannabinol (THC) and cannabidiol (CBD). The brain has a receptor for THC, the CB1 endocannabinoid receptor discovered in the 1990s. This receptor developed long before people started smoking pot. CB1 receptors work by picking up a

[2] He noted that the brain develops back-to-front, with basic functions like heart and breathing established earliest in the brain stem, then motor functions and balance in the hindbrain (one of the reasons young teens are so good at gymnastics) and finally executive functions like decision making and judgment in the forebrain.

neurotransmitter called anandamide, which slows down and regulates dopamine receptors in the brain's synapses. (Mice genetically engineered to lack this CB1 receptors don't feed, breed, or live long.) The receptor also helps regulate short-term memory, allowing the brain to dismiss bad experiences—like a batter shaking off a bad pitch—to focus on the task at hand.

The brain effects of THC have had more study than those of CBD. THC has some use in treating anxiety, multiple sclerosis, some forms of seizure, and appetite control. It can also control pain, such as from diabetic peripheral neuropathy. But THC tends to increase the cycling rate of bipolar disorder.

CBD has had less study and not much is known, except that it is not psychoactive. CBD works in the brain on the CB1 receptor, like the neurotransmitter anandamide: it affects serotonin levels and stabilizing the whole system.

CBD can be used to treat anxiety, similar to the medication buspirone; it has no side effects and is not addictive, but the cost is high. An edible dose of THC may be 5 to 10 milligrams, an effective oral dose of CBD is 300 to 800 milligrams, and then the person would not feel high, just pleasantly better overall.

Q. How does cannabis mix with other medications? Can an adult taking antipsychotics still use it?

There doesn't seem to be much interaction. Cannabis does not make schizophrenia worse for an adult—but you can't say this about adolescents. With long-term adult use, the amygdala—which controls emotional perception—shrinks by about 7%. So a heavy user might miss emotional cues from other people that a nonuser would notice.

We don't have a lot of experience with psychosis and cannabis use. Even the new concentrations—and some dispensaries are issuing 100 milligrams of THC as a dose—don't seem to affect the symptoms of schizophrenia.

Q. Is cannabis used in treating migraine?

A. It can help relieve pain and improve sleep. Migraine is caused by blood vessel plasticity and a chemical cascade. We don't know the effects of CBD, but it may be worth a try if the risk is low.

Q. Why do people with schizophrenia smoke cigarettes?

We have only theories. Nicotine helps people focus, among other effects, and it's pleasurable. But nicotine is less a problem than the smoke itself, which contains polyaromatic hydrocarbons. These ramp up liver enzymes and cause the body to metabolize certain medications faster. That will lower the levels of medications like fluvoxamine and olanzapine. Interestingly, schizophrenics do not have increased risk of lung cancer. Vaping has less smoke, but at the higher wattage levels it generates unwanted chemicals, like ammonia.

Q. How do you stop teenage cannabis use?

You have to get across the message about their lack of functionality and what they're missing in life. You can then incentivize them to do something different. But heavy users will still take time to get back their sense of reality and novelty—to see "the rainbow on the bubble" again.

For more about Dr. Kan and his medical practice, see www.davidkanmd.com.