Dr. Mark Donaldson & Dr. David French – Cannabis, Drug Interactions, and Pain Management – Q&A

Dr. O'Keefe: Here at CDA Oasis, we endeavor to provide responses to your questions, clinical and non-clinical, and there's an open invitation to you just submit those questions to us. In this light, we had a recent communication from Dr. David French who's a periodontist in Calgary and he approached us with a list of questions on his mind about cannabis, drug interactions, and cannabis as a potential pain reliever in the armamentarium of dentists. So, rather than have me interview an expert, in this case, Dr. Mark Donaldson, who's a doctorate in pharmacy, we arranged for Dr. French to speak directly with Dr. Donaldson. And here is the conversation that took place between the two of them.

Dr. French: Yeah. So, thank you for agreeing to talk to me with this on the topic of cannabinoids and THC in dentistry, Mark. I guess that the areas of materials [inaudible] in questions are, you know, the effect to the dentist when the patient is on the medication, whether we're aware of it or not. And what does that mean from a prescribing perspective or managing the patient chairside? And the other one is, what about the potential for prescribing it as a pain management or anxiety management device as a dentist prescribing to the patient that perhaps in future? The other thing that I think what we have to touch on is what is cannabis and basically how is it, is it protein bound and how does that affect the half life and how does that affect, you know, how long it's in the circulation, how long is this going to be a potential interaction? what are the different methods of taking it? And you know, all those kinds of questions, I guess.

Dr. Donaldson: Let me start off very simply and that is that since the legalization of marijuana in Canada in particular, and obviously that we were seeing that same sort of wave than the United States, now we're in 30 states that have approved it, and since the mid-term elections just a couple of weeks ago that number may go up. So, you know, it's here to stay is the bottom line. And obviously now that access to it is, it's much more readily available, dentists are going to be seeing more and more patients coming into the office, either on the smoke formulation, which you know, when I speak about marijuana in that regard, you know, that's kind of nice in a certain way because, you know, while our patients don't typically lie to us, patients don't always tell us the truth.

Dr. Donaldson: And, historically when we've asked about marijuana or illicit drug use, you know, and they have said yes or no, we sort of have to take their word for it. If they're smoking marijuana, you know, it tends to be a little bit more apparent is as this cloud is almost following them in, or you can smell it on their... So, that helps us a little bit with at least getting an up-to-date medical list, a pharmacological list of current medicines not just the over the counter prescription but also perhaps this new marijuana. And if they are smoking

marijuana, you know, then that at least allows now for a very open discussion since it has been legalized to say, you know, tell me why you're taking this? Is it just for generalized anxiety? Is it for you know, a social thing that you do? It's not really medically indicated, but you use it recreationally.

Dr. Donaldson: How often do you use it? And, you know that now new open discussion with the patient will help to guide dental treatment. In other words, if, as you correctly stated, we have a lot of patients in fact greater than 50% of the population reports having some level of fear or anxiety about seeing the dentist. And so if they're self medicating with inhaled or smoked marijuana to ease their anxiety for dentistry, well actually that ends up being wonderful for dentists because maybe you don't have to use Halcion or nitrous oxide in these patients anymore. They've already self medicated. They're relaxed enough to accept treatment.

Dr. French: From a legality perspective though, if we know that they're on that, then we have to go through the whole level of monitoring the same way we do for Halcion and ensuring that they have drivers home and the rest of that, like how do we sign off on that if we're not actually prescribing it?

Dr. Donaldson: Yeah. So great question and I think this is something that the colleges are going to have to wrestle with, but you know, let's compare it or make an analogy with currently available prescription medications that could result in the same type of effect. And in other words, let's say a patient is taking an antihistamine. It's cough and cold season, right now; they're taking, you we know antihistamines are sedating. How do you currently manage patients that walk into your office and say, oh by the way, doc, I take Benadryl four times a day? So, there's two answers to it. The first answer is I don't do anything different for those patients; I mean I treat them like an otherwise normal individual. Or, the second answer is, you know, I, I have a healthy respect for medications. I'm a sedation dentist. Normally during the sedation appointment, if I was to give you a sedative, I would hook you up with pulse oximetry. I have all of my, you know, emergency kits, my monitoring in place and so I'm going to monitor you just like I would a sedation patient and I would say, you know, not necessarily being a dentist but understanding, you know, in the medical legal world that we always want to take the opportunity to do the right thing, if we can. That's probably the right answer is that you should be monitoring them. However, as I started off my answer, that's really up to the colleges in Canada and the boards in the United States to decide to do we treat patients that come into your office self-medicating with and I'm making a differentiation to inhaled or smoked marijuana right now, do we have to treat them like they're a patient on a sedative?

Dr. French: And I think like you're saying it probably, but who's says if we know then to record that in the chart, monitor the patient, monitor the vitals and then, and I

would say in my opinion, probably also ensure that the drive home has been arranged just like you would if you'd had a patient on Halcion or something because at the end of the day if you knew and you let them out the office, it's no different than letting a drunk patient go out of your house and have a car accident.

Dr. Donaldson: Exactly, so appropriate discharge protocol. Responsible Adult. I agree. And I like what you said in the beginning, David, which was, you know, documentation at the end of the day is really what saves you. So, you want to document in the chart. Now, the harder part, which is probably where you're going to step to next is well what about those people that are taking edible formulation?

Dr. French: I mean, tell me about the edibles in terms of like, the onset is, you know, one to two hours later and what's the half life, like 20, 30 hours?

Dr. Donaldson: So, half-life does not change depending on the drug. I mean, the half-life is a constant regardless of how you give the medication. So, that's nice. And, as every, you know, gold medal, Canadian snowboarder knows, the half is roundabout, you know, well, it's extended. It can be detectable for up to 30 days after exposure. And, the reason I'm sort of hesitating on giving you an actual half-life is because this is a natural substance and as a natural substance, it has more than one active ingredient. It's an organic matter. And so, there are multiple cannabinoids in each of those cannabinoids within the marijuana plant, the leaf, whatever it is that the patient has ingested. Of course, you know, those individuals have different half-lives.

Dr. French: As far as the risk to the patient interactions, is it the THC or CBD or is it both? Like what is the area of risk?

Dr. Donaldson: Yeah, so it is going to be both and that's where medical science currently is with research; is trying to understand the interplay or ratios of those different cannabinoids and you've mentioned that the top two, so tetrahydrocannabinol or THC and then Cannabidiol, which is the other one, but there are in fact for other sort of primary, so a total of six primary cannabinoids that we now recognize in medicine are certainly going to be our targets for future drug development and it's going to be the interplay of those ratios that ultimately result in the effects you're going to see in patients.

Dr. French: The sedative one could be an anxiety-reducing agent. Everyone could be perhaps even something that's a mood elevator.

Dr. Donaldson: Yeah, or as anti-nauseant as we just had approved in the United States, one for childhood-induced epilepsy. So, it's an interesting field and it actually is going to give us a lot of opportunities I think in the future. Now, you had asked at the beginning, well how exactly do these work? And, I always bring up that analogy

of the poppy plants, so you know, you go back 60 years, 60 plus years, and heroin, which was derived from the poppy plant, ultimately led us to the development of narcotics today, you know the oxycodones, everything that we have. So, it did start with this plant in the natural world to help us to develop and in fact discover the endorphin system and from the discovery of our own endorphin system, we went on to develop pharmaceutically elegant narcotics.

Dr. Donaldson: What we're discovering with marijuana, of course, the reason that we get pleasurable effects from smoking marijuana is because we have receptors for the cannabinoids in our brains. And the reason we developed through the evolutionary process receptors for cannabinoids is because we in fact make our own cannabinoids. We have those, those are called endocannabinoids. And so that's kind of the next step is now that we've discovered this endocannabinoid system that naturally occurs and exists within each of us, how do we develop medications that interact with the endocannabinoid system to cause those types of clinical effects you and I are just talking about.

Dr. French: Okay. So, going back to, you know, from the perspective of the dentist is: tell me about the big interactions, the ones that we really need to watch out for. I'm familiar at least already with potentially erythromycins and some of the new generation antihistamines, but maybe you can talk about that. And is there other ones?

Dr. Donaldson: Yeah. So, let me, let me answer one of your earlier questions first; and that is that when you compare smoked marijuana to ingested marijuana, they actually do end up being two slightly different animals. The smoked formulation as you may or may not be aware, comes on very, very quickly and patients tend to get sort of a relaxation and antianxiety effect out of the smoked formulation. When people ingest it, the very first thing that happens is the cannabinoid hits the liver. The liver undergoes what's known as the first-pass metabolism, and in doing that actually converts the cannabinoid to a hydroxyl radical and that hydroxyl formulation is in fact three times more psychoactive than the inhaled formulation. And so, I bring that up because, you know, if you have somebody that smokes marijuana, they come into your office, they've got sort of this cloud following them, they seem a little bit relaxed, you know, that's probably not the patient that's going to require a triazolam because they're already self medicating. They may require, let's say, some nitrous oxide, click on and click off just to get them through the local anesthesia piece with whatever

Dr. French: Contra-indicated use for nitrous oxide, then?

Dr. Donaldson: No, not at all. We'll talk more about that in a second because in the long-term, there could be a challenge. But, what I was gonna say with patients that are taking the edible formulation, those are the ones where we have even greater concerns around drug-drug interactions because as I said, you know, you're now

dealing with this hydroxyl radical that is very different than the smoked formulation.

Dr. French: So, is the concentration the same that they're taking? So, the amount is the same, but it's just the fact that it's a different radical that is changing the drug interaction risk?

Speaker 3: Yeah. So, it actually increases the interaction risk because you've now created a new molecule. And so, this molecule has again its own half-life, its own binding capacity and its own potential interactions. So, I think, you know, if you take a look at it, regardless of whether the patient is inhaling or ingesting the medication, the ultimate end point tends to be the same, which is, you know, effects on the cannabinoid system causing ultimately relaxation in the patient. And so, anything that we give to a patient, which will cause relaxation or depression of the central nervous system, you have to understand that there's going to be an additive, if not a synergistic effect. That's what I mean if you have on the smoked formulation, probably not going to give them triazolam that day.

Dr. French: Right. And, if they're on the oral formulation, would they be on something like that as a routine basis for themselves and they'd be safe taking a couple of tablets in the morning or gummy bears and that's kind of their normal day? That's normal?

Dr. Donaldson: That's, again, great, great question because you know, what is normal is what they tell you it is. And if that's their normal day, a couple of gummy bears or whatever it looks like that they're taking the butters, the oils and all the different formulations, you have to recognize that that is their baseline. And so oftentimes in medicine, you know, while we would like to be working with a clean system, in other words, hey, I would like you to stop taking this prior to us doing dentistry because I would like to use medications that have a known dosage and a known effect and that will make a dental appointment much more predictable, you already asked the right question is, and that was, well, what's the washout period look like? And if the washout period is 30 days, it's unlikely heavy users of cannabinoids are going to stop taking them for 30 days prior to a dental appointment. So, the challenge for you in dentistry then is okay, recognize that the patient is probably not going to come in as a clean system, that their baseline is having a couple of gummy bears, you know, every few hours throughout the day. So, I have to treat them at this new baseline, recognizing that there's this drug is onboard. And so ultimately, you know, maybe there's some drugs that you avoid. We talked about the benzodiazepines and maybe you're not going to be using those or if you are going to be using them, I would definitely shoot for, you know, 50% dose reduction. We always want to go low, go slow.

Dr. French: Suppression then too, would it augment that concern?

Dr. Donaldson: Exactly. In fact, not just augment, meaning not just an additive one plus one, but probably a synergistic effect because the benzodiazepines do work by a different mechanism of action than the marijuana. And so, you know, we're, we're just not sure what that interaction could look like. Yeah unpredictable, that's for sure.

Speaker 2: We have to be careful because again, if someone has been on this med and my assumption is that if they've been doing occasional use, then they're going to have that in their system for maybe up to 30 days. That might mean a drug interaction that I need to be careful of. So, in prescribing, what do I want to avoid? I mean, erythromycin is that correct? That's one to avoid or?

Dr. Donaldson: Yeah. Well, Erythromycin, you should be avoiding any way just because, you know, we have safer antibiotics out there, you're probably familiar with the increased risk of sudden cardiac death with Erythromycin. So yeah, so, Azithromycin.

Dr. French: Patients don't have, you know, they don't have access, maybe they've had a problem [inaudible] and they're allergic to penicillin and you know, the, Erythromycin class becomes kind of our second or third choice or even a patient who goes down to Mexico and gets traveler's diarrhea and they decide to take that class of medication because that's a commonly prescribed one for that as well. Maybe should we be advising them if a patient says, Hey I'm a smoker, you can say, by the way, if you go to Mexico, just be careful. Don't necessarily take this as your anti-diarrheal.

Dr. Donaldson: That's great counseling. And what I would typically do is say, if you're ever going to get a prescription for Erythromycin, make sure that they change that to Azithromycin. That's Zithromax because that's the macrolide that will help you avoid those types of interactions.

Dr. French: It's less of a concern?

Dr. Donaldson: Absolutely, yes.

Dr. French: Okay. Well that's good to know.

Dr. Donaldson: Yeah. And then some of some of the other ones I think are really going to be those ones again, that affect cognition more than anything else. So, we're already counseling our patients, you know, to restrict your watch their alcohol intake, anything that's additive with cognition, I think, you know, probably what's going to be a greater challenge and I don't know your patient population in particular, but with geriatric dentistry or treating, you know, an older population that's retained in care; when you've got these patients now with Parkinson's, Alzheimer's, and maybe they are for whatever reason taking

marijuana because maybe that's helping them with let's say pains associated with some type of cancer they have. And, so those are the individuals where I think the greater challenge is recognizing that they're on all of these other medications for some type of medical benefits that relates to overall cognition and they're taking marijuana, which of course also affects cognition. You know, that I think is one of the greater challenges, especially for dentistry because you are treating an older population these days who end up collecting chronic diseases, on multiple medicines and yet they retain their dentition. So, they have to come to see you. One of the things, before I forget the topic, because I did sort of put a little pin in that and that, that was about the nitrous oxide. So, nitrous oxide, still definitely the safest drug, best drug to give any of your patients anytime, regardless of the medicines they're on. But, the point I wanted to bring up is that the primary contra-indication to nitrous oxide is, you know, is chronic obstructive pulmonary disease.

Dr. Donaldson: And, historically, we've always thought, well, listen, if a patient is pulling a tank of oxygen into my office, that's not the patient I'm going to give nitrous oxide to because obviously they've got emphysema or chronic bronchitis or some problem that makes them a contra-indication. I think that's the image we've always had in our minds that patient who shouldn't get nitrous. The problem that we have today, believe it or not, is that the chronic obstructive pulmonary disease patient is actually going to be much younger. And I don't think that general medical, general dental groups have started to recognize that. In other words, we have a very young population whose exposure to marijuana, certainly smoked marijuana, is occurring earlier and earlier in life. And people don't smoke marijuana the same way they smoke tobacco. They deeply inhale, so the pathology that's currently associated with inhaled marijuana, closely mimics chronic obstructive pulmonary disease at a much earlier age. And if these patients are not only smoking marijuana but smoking nicotine, it's been shown in several studies that the incidence of respiratory disease actually gets accelerated by that combination.

Dr. French: And is that a permanent condition or if they stopped smoking, do they get some recovery because they are young or?

Dr. Donaldson: Yeah, well we haven't seen a lot of those long-term safety studies yet. I would like to think that over time it is reversible, but I don't know what that length of time is like. And so really the teaching point is if you have a young person that has been smoking marijuana plus or minus smoking nicotine for several years, they may be a contra-indication to receiving nitrous oxide because like your old COPD patient, you're now seeing many more young patients with COPD.

Dr. French: So, how would we measure that when we just look at their pulse [inaudible] a baseline or do we actually have to get into some other, some other medical assessment?

Dr. Donaldson: Yeah. No, I think that's the easiest one to do. What does their oxygenation look like when they walk into your office and if they're, you know, 90% or more, hopefully much closer to 100, but if they're 90% or more, recognize that that's probably going to be a safe individual, but if they're just on the cusp of that oxygen dissociation curve, meaning that their O2 [inaudible] at room temperature, at a normal room air is 90% or less that that's again, probably not the patient you want to give.

Dr. French: Then it'd be time to talk to their MD as well.

Dr. Donaldson: Yeah, absolutely.

Dr. French: How about if they're vaping? Because I'm finding that vaping is becoming hugely popular. It's, I think it's a terrible thing that's happening because we're almost reinventing or re-inviting cigarette tobacco use. But I had come across something called popcorn lung, glycerol. Is that also a dangerous form, they're using marijuana, using vaping devices rather than kind of a slow heat device?

Dr. Donaldson: Exactly. I mean, I think, you know, we're essentially just trading one poison for another and what a lot of people didn't realize about e-cigarettes, vaping is that it's still nicotine. I mean, you're still inhaling a foreign substance into your lungs. Sure maybe it's at a lower temperature, maybe the [inaudible] is not creating as many carcinogens, but it's still causing a lot of pathology and what I just mentioned about the inhaled marijuana, people that use cigarettes or vape tend to take, you know, very deep inhalations, hold it, and so that overall exposure is actually going to be worse over time.

Dr. French: And doesn't the glycerol have some kind of interaction as well, like it forms like an acid in the alveola or something to that effect?

Dr. Donaldson: Exactly what it's doing is it's impacting the alveola's ability to diffuse oxygen into the blood and to help diffuse carbon dioxide out of the blood. And so essentially you take a look at that single cell lining, the very fine alveola of the lungs, and normally that's young, healthy pink tissue. Well, the glycerol actually acts as almost a coating on that ... exactly right. Yeah. Yeah. And it's also starting to skim off the Cilia which would normally help to [inaudible] out of lungs, making them less effective.

Dr. French: So, if we have a patient who we, if we know is vaping or even a patient who's say quit smoking and now they're vaping, even tobacco, we should at least warn them about that. And are there other systems that they can use if they're not going to quit tobacco, is there other ways that they can do that?

Dr. Donaldson: Well, they really do need to quit tobacco.

Dr. French: Vaping isn't necessarily as safe as the marketing would have them believe?

Dr. Donaldson: And that's the education that I always give patients: maybe it's a cleaner smoke as it's often advertised, but the fact of the matter is you are still putting a foreign substance into your lungs and that's causing a problem.

Dr. French: At a young age, and like you said, heavy, heavy inhalation doses. So, tell me about pain management then. I mean, is this a drug that's good for pain management? We've talked about anxiety reduction if they're coming in. What about pain management and in the short-term acute pain, dental pain?

Dr. Donaldson: Sure. So, hopefully in the future we will have some pharmaceutically elegant cannabinoids in, you know, a tablet, capsule form that are indicated specifically for pain and, you know, maybe in the future rather than prescribing narcotics, which I know a lot of your colleagues have done. You know, maybe cannabinoids are an alternate, non-narcotic opportunity in those patients, you know, who Acetaminophen and Ibuprofen, you know, are just not going to cut it, but

Dr. French: From the GI history or, I mean, if you have a liver problem, would this be an option because, for example, if they have a history of some liver issues, then we don't want to be using Tylenols, Acetaminophens. Do we then say, well, this is an option since we're restricted at this area?

Dr. Donaldson: Yeah. You again bring up a good point. The cannabinoids are metabolized through the liver, which is in some drug interactions, and if people had liver impact or liver hypofunction then certainly we want to be perhaps even staying away from the cannabinoids.

Dr. French: Okay.

Dr. Donaldson: Now we're not there yet. Right? I mean, that's, that's the problem is we don't have that prescription for you to write.

Dr. French: As a physician or a doctor or a dentist, we can't say to the patient, you know, let's say that we practice a holistic kind of practice and holistic dentistry or something to that effect. And we have a lot of patients that are , you know, wanting to stay away from big bad Pharma, you know, would we be okay to say, look, this isn't to prescribe use, but you might want to consider, you know, taking some marijuana as a way of managing your pain postoperatively. Would we be beyond our scope to do that? Or would you just? Tell me what your opinion is?

Dr. Donaldson: Yeah. So, I can say very clearly that as of today, you know, 2018 almost 2019, it's probably outside of your scope to be recommending this. A couple of reasons.

One, of course is we are driven by medical evidence and there's no current medical evidence that consistently supports the use of cannabinoids, certainly for orofacial pain secondary to dental surgery. So, I do think it's outside of your scope. Now, I live in the same real world that you do, so you have those right? If I have a patient that doesn't believe in, you know, traditional pharmaceuticals but believes in more natural medicines and if they already have a certain level of experience with marijuana, you know, sure. I might say to them, okay, well I want you to take the Tylenol-Ibuprofen combination that I'm prescribing, but if you're telling me you're not going to and you want to use marijuana, it may or may not work. And, and listen, I would love to know. So, you know, take your marijuana as you think is necessary and if it works, let me know, because I'd like to build my experience around this too. But we don't have obviously head to head clinical trials, you know, we don't have any, what dose would you use are you ingesting of smoking...

Dr. French: And if he tells me that it did work, you still don't have anything there because you've got a bias patient, a sample of one, you might build your own experience that way, but you can't go and say now this is working for these patients.

Dr. Donaldson: Exactly. And we need, we need to stick with our principles which are evidence-based dentistry or evidence-based medicine. I will tell you that those trials are coming right. Those products, those pharmaceutically elegant tablets, capsules of cannabinoids they are coming. And so, you know, we might be having a very different discussion in 10 years in 20 years round about this, but as of today, just because the Canadian government, has deregulated the prescribing or the usage of marijuana, that doesn't necessarily mean that, you know, it's going to be all things to all people right away. We still need to do some research and find out, you know, what combination or ratios of the different cannabinoids actually are most effective and it's the same thing we do in medicine all the time. Right drug, right dose, right patient, right procedure.

Dr. French: Yeah, yeah. Now, as I understand in Canada right now, we have legalized the basically dry or the leaf form, oil and basically nothing else. Is that right?

Dr. Donaldson: No, that's my understanding too.

Dr. French: Inhalation type, the oral types are not legal, is that right?

Dr. Donaldson: I would have to look at the actual ruling but I agree that it was not carte blanche, there was some limitations. Yes.

Dr. French: Okay. Yeah. So, then from our perspective, if someone is using recreationally, we're going to be more concerned, or at least we're expecting them to be using inhalation form. Whereas medical marijuana, is that available in oral forms or? I don't know if there's a distinction in Canada.

Dr. Donaldson: Yeah, there are some cannabinoids currently available. Nabilone is a good example of Cesamet is a good example. Understand though that in medicine when we're dealing with an organic plant like marijuana, that because it has multiple cannabinoids, we talked a little bit about that already, multiple active ingredients, it's hard to quantify those and put them into a standardized formulation. And so, the currently available medical grade cannabinoids and I mentioned Nabilone and Cesamet, you know, they don't contain all the different cannabinoids that the natural plant would. In fact, they tend to localize on specific cannabinoids, let's say THC as an example and fine, if THC is the active cannabinoid that's going to address let's say nausea and vomiting associated with chemotherapy, which is what Nabilone is indicated for, and even then it's not very good at treating those patients, not a first-line drug. And it's because again, I think where we are with medical sciences, we recognize that there's some utility with cannabinoids but it's not as a single entity. So, it's not as THC. It's not as Cannabidiol, but it's a mixture and interplay of several different active ingredients.

Dr. French: I think that's what they called the entourage effect, where there's all these other drugs that are along and that actually might be providing the benefit.

Dr. Donaldson: Exactly right. In fact, one interesting lecture that I sat through was the thought right now, if you go to, let's say a Vancouver, Okanagan and wine country out there, you know, you can tell from one vineyard to the next and try these different types of wine that they grow, and there's thought that in the future, you know, you might actually have sort of a cottage industry where you can go from different, you know, smoke houses. So, you know, maybe this, particular cultivar of marijuana that's grown in this particular environment, you know, gives you these particular feelings, then you drive to the next farm over and they've got a different type of smoke room and cultivar and again, it's ultimately going to come down to the different types of cannabinoids and their interplay that ultimately results in the different symptoms or symptom relief that you see.

Dr. French: So, I want to maybe bring up that I had seen a lecture where they were talking about sativa and Endoca, and they were saying that Endoca meant in the couch. That's kind of like a chill and where Sativa is more like an elevator kind of bring you up and enjoy the party kind of thing. And so, what you're describing is, you know, that might be a very big simplification, but as they start to kind of tweak the plant and tweak the different entourage groups, they'll be able to get a different effect from different types.

Dr. Donaldson: Exactly. Right. Yep.

Dr. French: And, and therefore also that might affect how we would be thinking about the patient risk factor in terms of whether they're over sedated or not one might not be sedating at all, i am guessing.

Dr. Donaldson: Correct. The only caveat I would throw out is every patient is different and, you know, I think the on the couch piece is an interesting way to look at it because I'm sure for myself, I haven't actually tried it. But if I was to be exposed to either one, I'd probably wind up on the couch.

Dr. French: Yeah. So, yeah, I mean, I don't know if I have any other questions. Is there anything that you think that you wanted to bring up that was of pressing importance for dentists then?

Dr. Donaldson: Well, I think the big thing to realize from a dental perspective is yes, you are going to be seeing more patients that are exposed to marijuana, whether they do that consistently or, you know, they do it recreationally sort of ad hoc because now they can. And so, you know, it's still having that important conversation with the patient that listen to you come to my office, we have an oral health care plan for you. I'm going to use particular interventions and medications that I know work and I think you and I have the same goal, which is, you know, we want you to come in here, be safe and hopefully leave with that smile that we always talked about. And I can only guarantee that if I know all of the drugs and medical conditions that you currently have. With the advent of recreational marijuana use, perhaps going up, you know, we still need to get that information. And I liked what you had said earlier about documenting, in the future, certainly not now, in the future, medical cannabinoids may be part of the dental armamentarium, but as of today, just because it's been deregulated by the federal government in Canada, it does not mean that now it's a drug that you should add to your armamentarium and suggest or even prescribe for post-operative dental pain, because really those trials are certainly not here and they are still far in the future.

Dr. French: I think the thing is in light of that documentation, we changed our medical history form to include: are you using marijuana either recreationally or medically? And if so, how are you taking it and what is your regular regimen? Just because. And, at the end of that statement and our medical history form, we put "We're asking this because it might affect medications that we prescribe for you"; just so that they're not thinking that we're trying to be a big brother, but we're actually trying to protect them.

Dr. Donaldson: Exactly, yeah. I think once patients understand that, you know, we're all about patient safety and we only ask to do things on, you know, with their safety in mind. I think once they clearly understand that, why wouldn't they want to tell you the truth, right?

Dr. French: I think also the legalization might reduce some of the stigmas, so maybe that medical history would be a bit more honest and reflective.

Dr. Donaldson: Absolutely. I will compliment you though, David, on that because I know a lot of those dental intake forms are open-ended questions, you know, do you use any illicit drugs, do you take any herbal medications? And, I like the way that you are in fact asking much more direct leading questions because you know, sometimes it's not that the patients don't want to tell us the truth. They just, they forget, you know, they come into our office and say I can't remember what drugs or if I've taken herbal medications. But when you ask those leading questions, you know, if you take a chamomile, do you take [inaudible]? You know, wintergreen oil and anything like that? Actually, I do, I do. And so, it helps them, but it also helps you at the end of the day. And again, it keeps everybody safe.

Dr. French: So, maybe just one last question might be, you know, as our role as physicians and healthcare providers and dentists, do we know if we have a patient talking about this and we start talking about addiction risk and what is the addiction risk? Say compared to alcohol, is the addiction risk greater up? I've read that it's about one in 10 or one in 11, might go on and become addicted to it, which to me strikes as a pretty high number.

Dr. Donaldson: Yeah. So this is such a great topic. And I wish I had some of my slides. I have this one slide I'll actually have to forward it to you, which lists the addictiveness potential of drugs and what you see at the very top of that list is tobacco. So tobacco, you know, kind of the most addictive drug that we have out there and every drug since has been sort of measured against tobacco. So, marijuana in and of itself is actually not addictive to the same degree that tobacco is. There's a lot of people that try marijuana and, you know, they, they enjoy the effects, but they never try it again, but it's not, you know, it doesn't have that same sort of urgency or pull versus, you know, cocaine, heroin, methamphetamine, those types of things where you try it and you just know your entire focus is, how can I get more of that drug.

Dr. French: That's not a powerful chemical dependency. But I'm thinking is it a social dependency then?

Dr. Donaldson: And, that's what I was going to say. I think part of the challenge is people don't tend to only smoke marijuana, they also tend to smoke tobacco. And tobacco is the most addictive drug that we have out there. When you start to couple that with marijuana suddenly, you know, almost by collusion, marijuana seems to be an addictive drug, but it's that physical as well as that psychological addiction of being able to smoke something, have something in your hand. And, that's what I think is very challenging to get patients off. But your point is very well taken, I don't think it is outside of your scope to talk about the addictive potential and if

patients want to get on an abstinence or 12-step program to help manage their exposure to these drugs, I think that that's a good idea.

Dr. French: And also tell them not to mix it with tobacco then, because I think that's something that there's gonna be some, you know, don't take it, but the vaping device, don't mix it with tobacco and perhaps look into some of the safer ways of delivering, which I think is the low heat version or something to that effect.

Dr. Donaldson: Yeah, yeah, exactly. There's a lot more information to come, that's for sure. I'm kind of smiling because you and I are trying to do the right thing and counsel the right patients and what's happening in the real world, these people are saying, well now that I can smoke marijuana, what happens if I put this in with my marijuana as well? And you start having people that are now smoking crack cocaine with marijuana and, yeah, it's just never ending.

Dr. French: Yeah, that certainly changes the landscape for dependency in that case.

Dr. Donaldson: Absolutely. Yeah.

Dr. French: Great. Well, I think that's pretty much all the questions I had. I don't know if Dr. O'Keefe that put us together here has anything else to add or any questions. But I think that's been a great conversation.

Dr. Donaldson: Thanks David. I appreciate it.

Dr. French: Yeah. Thank you.