

Question: Cannabis-What Does It Mean for Your Practice?	Answer
Are there statistics available on driving under the influence of marijuana? Has there been any increase in traffic associated events?	<p>The question is one that law enforcement is interested in, especially with the perceived increased use of “legal” marijuana. There was a study published in 2016 looking at this issue: Rogeberg O, Elvik R. The effects of cannabis intoxication on motor vehicle collision revisited and revised. <i>Addiction</i>.2016;111:134859. The authors concluded that “Moderate-strength evidence from a recent meta-analysis of 21 multinational observational studies suggests that acute cannabis intoxication is associated with a moderate increase in collision risk.”</p> <p>There was another interesting study published in 2009: THE EFFECT OF CANNABIS COMPARED WITH ALCOHOL ON DRIVING. <i>Am J Addict</i>. 2009; 18(3): 185–193. The authors were looking at the co-consumption of alcohol and marijuana as well as the two substances alone. The conclusions were: “Epidemiological studies have been inconclusive regarding whether cannabis use causes an increased risk of accidents; in contrast, unanimity exists that alcohol use increases crash risk. Furthermore, the risk from driving under the influence of both alcohol and cannabis is greater than the risk of driving under the influence of either alone. ... The National Highway Transportation Safety Administration (NHTSA) reported the percentage of road traffic accidents in which one driver tested positive for marijuana ranges from 6% to 32%.”</p>
Do you have any recommendations on how to educate myself on proper dosing of CBD for patients?	Unfortunately, there have been no proper trials looking at CBD dosing for a specific diagnosis, except Darvet & Lennox-Gastaut syndromes (Epidiolex™), so the recommendations are mostly anecdotal. On the bright side, there have been no studies that have reported side effects associated with the use of CBD. That being said, you must keep in mind that the metabolic pathway involves competitive metabolism through the liver when consumed orally. Here is a reasonable resource for CBD usage: https://www.projectcbd.org
What are the side effects of cannabis use?	Mostly associated with a high THC product; tachycardia, hypertension, confusion, possible psychosis. The side effects are seen related to the effects of THC on the CNS.
How does the legalization of CBD effect recommendations for use?	This is an interesting question, as not all CBD is considered “legal”, and even in states where the product is within the parameters of being cultivated from hemp and THC <0.3%, there remains legal ambiguity. That being said, the acceptance by the patient and medical community to the safety, possible efficacy and perceived legality, has led to a plethora of CBD products on the market. Unfortunately, few clinicians have an understanding to the dosing, purity and true efficacy of CBD. None the less they are willing to accept their patient utilization.
Is there any stigma against patients who obtain a marijuana card?	My speculation is that there is much less stigma against those who take the time to obtain a medical marijuana/cannabis card, as opposed to those who claim to use marijuana for medical purposes without obtaining a card.

Is CBD better because it is water soluble? Is that even a valid claim?	No, this is not a valid claim.
What are the federal restrictions for marijuana?	Marijuana is a controlled substance 1, illegal for individuals to cultivate, sell or use.
What are your thoughts for CBD topical oil or ointments for joint /muscle pain?	There is not much scientific evidence to its efficacy, but many, many patients claim benefit. Topical CBD in rat models shows promise: Eur J Pain. 2016 Jul;20(6):936-948.
What are good resources to review/recommend for patients to?	<p>These are good resources for general education for both clinicians and patients:</p> <p>Canadian Consortium for the Investigation of Cannabinoids (CCIC)</p> <ul style="list-style-type: none"> ➤ Accredited cannabinoid education (ACE) programs ➤ Informed by needs assessments, expert faculty <p>www.ccic.net</p> <p>International Cannabinoid Research Society (ICRS): www.icrs2014.org</p> <p>International Association for Cannabinoid Medicine (IACM): www.cannabis-med.org</p> <p>University of Washington & Alcohol and Drug Abuse Institute (ADAI)</p> <p>http://adai.uw.edu/mcaccp/index.htm</p> <p>There are a couple other good lay websites that have good up to date information:</p> <p>www.leafly.com</p> <p>www.projectcbd.org</p>
Is there a concern if a RN on your staff is using CBD for very severe vertigo?	CBD oil itself should have no psychoactive effects that would affect judgment or compromise an RN in their duties. If this individual is in fact using CBD oil medicinally, consideration should strongly be given to obtaining a medical cannabis card.
How does this affect drug testing for NPs? If it is legal, will they have a level that is acceptable?	Currently, standard drug tests only test for THC, and there is no standardization for what level is consider acceptable.
Can you travel by plane with Medical Marijuana?	There are no laws against traveling by plane that I know of. I would recommend that travel also accompany carrying a medical cannabis card if traveling with marijuana, do not openly display the marijuana, and realize that the state or country that you are traveling to might have laws different from the place where you started. Having a medical cannabis card for your personal use in California, may not protect you from legal ramifications in Texas (or Europe).
Where can I find information on prescribing for my state?	<p>Here are a couple of resources:</p> <p>https://thecannabisindustry.org/ncia-news-resources/state-by-state-policies/</p> <p>http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx</p> <p>You could also just google your state (e.g. California) medical cannabis laws, and this should give you a start: https://www.bcc.ca.gov/</p>
Since Marijuana is Federally Illegal, How can a medical provider, with a DEA license, legally prescribe cannabis?	This is the million-dollar question! Remember this is not a prescription, it is a recommendation according to sanctioned state laws, that the federal govt has chosen not to readily prosecute. There are still many areas of grey, and the CBD

	<p>only products have complicated the picture. You might find these resources helpful:</p> <p>https://www.safeaccessnow.org/federal_marijuana_law</p> <p>https://www.deadiversion.usdoj.gov/schedules/marijuana/m_extract_7350.html</p>
Is the FDA approved Schedule V EPIDIOLEX the only approved cannabis?	<p>This is currently the only FDA approved cannabis sativa pharmaceutical product in the USA. There is another pharmaceutical grade THC/CBD product from cannabis sativa called Sativex™ currently available in the UK and Canada, but not the US. There are two other products available in the US which are synthetic THC analogues (dronabinol and nabilone).</p>
I saw that there a consideration for urinary retention - does this also cause edema?	<p>I am not familiar with edema as a consideration as an independent side effect. Urinary retention could be related to anticholinergic effects.</p>
Can you comment about use of dronabinol for aggression in Alzheimer's?	<p>While I personally have not had much experience with the use of dronabinol for aggression in Alzheimer's, a synthetic THC probably would not be something that I would consider using for aggression as it can be cognitively altering and stimulating. That being said, there was an article published in 2015 that you might find interesting:</p> <p>Liu C.S., Chau S.A., Ruthirakuhan M., et al. Cannabinoids for the Treatment of Agitation and Aggression in Alzheimer's Disease. CNS Drugs. 2015 Aug;29(8):615-23.</p>
What is the ideal THC: CBD ratio for back pain?	<p>Cannabis (THC +/- CBD) hasn't been studied for its specific use in back pain, so I cannot give you specific recommendations. What I can comment on are that studies that have shown better efficacy using a combination of THC/CBD for neuropathic pain, as opposed to CBD alone. You may find this of interest:</p> <p>https://www.cadth.ca/cannabinoid-buccal-spray-chronic-non-cancer-or-neuropathic-pain-review-clinical-effectiveness-safety</p>
As NPs and RNs, would there be legal ramifications to prescribing?	<p>RNs without an advanced degree would not be prescribing or making medical recommendations. I know of no legal ramifications against RNs who counsel patients about safe use of marijuana. For NPs, as with other prescribers, if you follow your states recommendations/laws pertaining to your responsibilities when making the medical recommendation for a patient to obtain their medical cannabis card, you should be fine. There was a legal case in 2002 that spoke to possible legal action that could be taken against physicians that may be seen as enabling their patients to obtain cannabis, and the main reason why I recommend NOT directing patients to specific dispensaries or products:</p> <p>"2002 federal appeals court decision Conant v. Walters, which held that although doctors can recommend cannabis to patients, they cannot "aid and abet" them in obtaining it." [Cancer and medical cannabis. American for Safe Access.]</p>
How do you feel the use of cannabis may be used in the acute care environment, other than as an appetite stimulant?	<p>This is a great question. Hypothetically, I think that there is wide application as an analgesic, sedative, possible sleep aide. Currently the practical applications are restricted to the acute care organizations policies about use.</p>
Is any research "industry funded" - that is to say, funded by groups who would	<p>Yes, most research that is done looking at applications for pharmaceutical products are industry sponsored. Examples of this include research that was funded by GW Pharmaceuticals for it's recently approved drug Epidiolex™</p>

benefit from positive outcomes for the product?	
I read that there is a bronchodilation effect in cannabis when inhaled? Is this true?	<p>Cannabis smoking has been found to produce an increase in FVC, but the reason(s) for this are unclear. You may find these articles of interest:</p> <p>Luis IG Ribeiro & Philip W Ind. Effect of cannabis smoking on lung function and respiratory symptoms: a structured literature review. NPJ Prim Care Respir Med. 2016; 26: 16071.</p> <p>Williams SJ, Hartley JP & Graham JD. Bronchodilator effect of delta1-tetrahydrocannabinol administered by aerosol of asthmatic patients. Thorax. 1976 Dec; 31(6): 720–723.</p>
Is bioavailability different if taken SL vs oral?	Generally, yes, increased with SL. The aim is to have quicker and more effective absorption through the capillaries under the tongue.
I understand that cannabis is metabolized by CYP450 - is it an inducer? Inhibitor?	<p>Wow, this is a great question, and one that I needed to research. Below is a fine article that will provide you with much greater scientific evidence. This is some basic information: cannabidiol is a weak inhibitor of CYP-1A2,2B6,2C8,2C9 & minor inducer of CYP-1A2&2B6. THC is metabolized by CYP2C9 and CYP3A4. Patients who are poor metabolizers of CYP2C9 have been shown to have THC concentrations that are about 3-fold higher than those of extensive metabolizers of CYP2C9.[Clin Pharmacol Ther. 2009;85:273-276]</p> <p>Stephen M. Stout & Nina M. Cimino (2014) Exogenous cannabinoids as substrates, inhibitors, and inducers of human drug metabolizing enzymes: a systematic review, Drug Metabolism Reviews, 46:1, 86-95.</p>
Do you have any resources you recommend for looking at cannabis interactions with prescription medications?	There are some general basic rules of thumb. First any cannabis product with THC is going to be possibly potentiating when given with any other CNS stimulant, given the common MOA. Understanding the side effects of THC with regards to increasing heart rate and blood pressure, when given with other medications that have the same side effect, again you could see an increase in this side effect. Finally, any medications that are metabolized through the same pathways could result in less or more of the drug's effects. For scientific reviews I find this journal very informative and up to date: <i>Drug Metabolism Reviews</i> . Epocrates is a good quick reference for cannabidiol and synthetic THC.
What certifications are necessary to prescribe?	Remember that you are not “prescribing” marijuana, you are making the recommendation of cannabis for a medical condition, approved by your individual state. Each state has its own qualifications for who is allowed to make that medical recommendation (MD, DO, NP, PA), to allow patients to obtain their medical cannabis card and take to a dispensary. Many states also have continuing education requirements for their clinicians before allowing them to certify their patients for a medical cannabis card (e.g. FL, NY).
It seems that most of the lecture was regarding CBD that contains THC. Does all of the same information apply to CBD that has no THC and is derived from the hemp plant?	This is a bit of a complex question, so I will try and be brief with my reply, focusing on what I think is most pertinent. First of all, it is very difficult to produce a product that is 100% THC free, even from hemp. Most states accept a product that is <0.3% THC, as “THC free”. The only product that is 100% THC free is hemp oil, which is different than CBD oil. I would have to say that yes, everything that I discussed in my lecture is pertinent to products derived from either the cannabis sativa or hemp. The use of CBD only products still carries

	some ambiguity in the law and should be treated with caution, as with THC products. Edible CBD only products have liver metabolism and drug to drug interactions as does THC edibles. The main differences are in regard to the cognitive and possible CV side effects.
Will CBD only products reflect positive testing on drug screens?	Most current toxicology screens only test for the presence of THC.
Are there studies that indicate greater incidence of schizophrenia in clients utilizing marijuana?	There have been reports of genetically susceptible individuals who express symptoms of psychosis with higher dose THC products. I am not familiar of any studies that have been done looking at the susceptibility in the general population of patients to schizophrenia when using marijuana.