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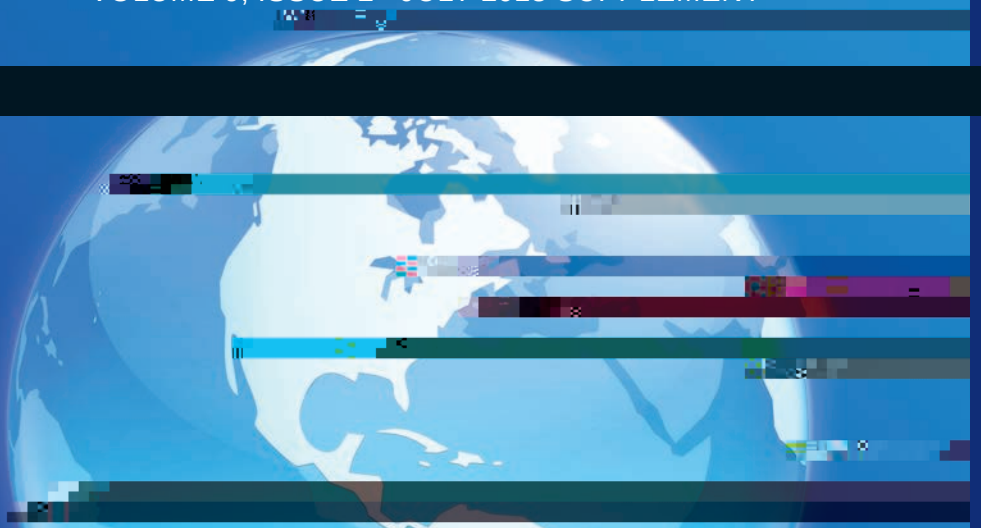

JOURNAL OF NURSING REGULATION

Supplement

The NCSBN National Nursing Guidelines for Medical Marijuana

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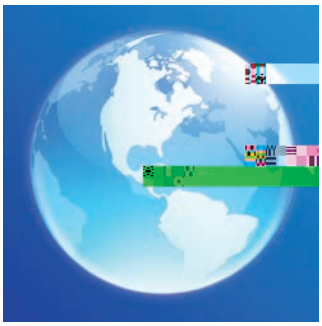

Advancing nursing excellence for public protection

Mission

TheJournal of Nursing Regulation provides a worldwide forum for sharing research, evidence-based practice, and innovative strategies and solutions related to nursing regulation, with the ultimate goal of safeguarding the public. The journal maintains and promotes National Council

The NCSBN National Nursing Guidelines for Medical Marijuana

Prior to 1936, cannabis was sold over the counter and used commonly for a variety of illnesses in the Unites States (Marijuana Policy Project, 2014). By 1936, every state had passed a law to restrict possession of cannabis, thus eliminating its availability as an over-the-counter drug. Then in 1970, the Comprehensive Drug Abuse Prevention and Control Act (1970) provided a classification of controlled substances; cannabis was included in the list of Schedule I Controlled Substances, thereby continuing the prohibition of the use of cannabis by prohibiting health care practitioners from prescribing cannabis.

Use of cannabis remained restricted until the first legalization of medical marijuana was approved by voters in California in 1996. Even after the voters' approval, the federal government opposed the proposition and threatened to revoke the prescription-writing abilities of doctors who recommended or prescribed marijuana. It was not until 2000 that a group of physicians challenged this policy and prevailed in court, and a decision was made to allow physicians to recommend—but not prescribe—medical marijuana (Marijuana Policy Project, 2014).

Since then, an increasing cultural acceptance of cannabis has prompted 31 jurisdictions (including the District of Columbia), Guam, Puerto Rico (National Conference of State Legislatures [NCSL], 2017), and all provinces/territories of Canada (Government of Canada, 2016) to pass legislation legalizing medical cannabis. In these laws, the jurisdiction has adopted exemptions legalizing the use of cannabis for medical purposes. An increasing proportion of jurisdictions have also

Current Legislation, Scientific Literature Review, and Nursing Implications

The surge of cannabis legislation has outpaced research on the use of cannabis due to the restrictions placed on tha as a result of its classification as a Schedule I Controlled Substance (Comprehensive Drug Abuse Prevention and Act, 1970). Nurses are left without evidence-based resources when caring for patients who use medical or recreatio nabis products. Research is possible, but only under rigorous oversight from the government. The process for obtaining c for federally funded research purposes is cumbersome and unlike any other procedures for drug research.

Importantly, the reader must be aware that cannabis as a therapeutic agent has not been reviewed by the U.S. Food Administration (FDA) to determine if it is safe or effective and therefore is not subject to the quality standards and safety inf tion collection standards that are applicable to most prescription drugs. This report provides a means to inform nurses ab current scientific literature regarding medical use of cannabis as well as areas that currently lack scientific evidence.

It was not until 1973 that scientists discovered how cannabis functioned within the body – as a component of the end nabinoid system. The endocannabinoid system consists of endocannabinoids, cannabinoid receptors, and the enzymes re for synthesis and degradation of endocannabinoids (Mackie, 2008). These cannabinoid receptors are evident throughout t embedded in cell membranes thought to promote homeostasis. Endocannabinoids are naturally occurring substances wi body, while phytocannabinoids are plant substances found in cannabis that stimulate cannabinoid receptors. The most well of these phytocannabinoids is tetrahydrocannabinol (THC); however cannabidiol (CBD) and cannabinol (CBN) are also g attention (Pacher, Batkai, & Kunos, 2006).

Notwithstanding the restrictions resulting from the classification of cannabis as a Schedule I Controlled Substance, high-q clinical evidence has emerged that establishes the efficacy of cannabis for certain therapeutic applications. However, despi describing the value of cannabis in the treatment of certain conditions, its safety has not been fully established by large-sca domized clinical trials. Some safety information does exist for cannabis (Ware et al., 2015), but the current research does n clinicnt researlikationnes wel orbnotdemualTd [ees not fully

The federal government's position on prosecuting the use of cannabis that is legal under the law of the applicable juris has been set out in U.S. Department of Justice (DOJ) position papers. In 2009, the U.S. Attorney General took a positio discouraged federal prosecutors from prosecuting people who distribute or use cannabis for medical purposes in complian the law of the applicable jurisdiction (U.S. Department of Justice [DOJ], 2009); further similar guidance was given in 2011, 2 and 2014 (DOJ, 2011, 2013, 2014). In January 2018, the U.S. Office of the Attorney General rescinded the previous natio guidance specific to marijuana enforcement (DOJ, 2018). The 2018 memorandum provides that federal prosecutors foll well-established principles in deciding which cases to prosecute, namely, the prosecution is to weigh all relevant conside including priorities set by the attorneys general, seriousness of the crime, deterrent effect of criminal prosecution, and cum impact of particular crimes on the community.

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employee of a hospice provider or nursing or medical facility, or a visiting nurse, personal care attendant, or home health
act as a designated caregiver for the administration of medical marijuana (NCSL, 2017).

As Table 2 demonstrates, jurisdictional legislation regarding cannabis is an ever-evolving process. This summary is c
as of June 2018.

TABLE 2

in individuals with sleep disturbance associated with obstructive sleep apnea syndrome, fibromyalgia, chronic pain, and m
sclerosis" (National Academies, 2017).

The reports published by the National Academy of Sciences and WHO broadly addressed the evidence for the effect
of medical cannabis. However, these two reports did not highlight material immediately useful for practicing health care wo
such as dosage, administration, drug interactions, jurisdiction statutes, and evidence supporting jurisdictional qualifying condi
Without a nuanced examination of the studies that comprise, or were omitted from, the meta-analyses, details relevant to t
of patients with medical cannabis may be overlooked.

Gaps in Comprehensive Reviews

All analyses and reviews have limitations that may include their stated goals, search terms, search resources, and other me

From this review, as indicated in Appendix B, moderate- to high-quality evidence is available for effective treatment cannabis for the following conditions:

Cachexia
Chemotherapy-induced nausea and vomiting
Pain (resulting from cancer or rheumatoid arthritis)
Chronic pain (resulting from fibromyalgia)
Neuropathies (resulting from HIV/AIDS, MS, or diabetes)
Spasticity (from MS or spinal cord injury)

However, the evidence supporting the efficacy of cannabinoids for the treatment of these conditions is limited to the p lations, symptoms, formulations, dosages, and administration methods noted in Appendix B.

The literature review also identified three conditions, included in Appendix B, that are supported by a single moderat high-quality clinical study:

Reduction of seizure frequency (Dravet syndrome and Lennox-Gastaut syndrome)
Reduction of posttraumatic stress disorder (PTSD) nightmares
Improvement in tics (Tourette syndrome)

The conditions listed above require additional study to verify the findings of the current studies. This report separate treatment populations involved in the two epilepsy studies. The evidence for CBD as an efficacious add-on therapy is spe the treatment groups and as such does not represent high-quality evidence for CBD as an effective treatment. The FDA is c investigating Epidiolex, the specific formulation of CBD used in the two seizure studies, and has approved the formulatio individual Investigational New Drug exemptions ("GW's Epidiolex Clinical Program," 2018).

A large number of anecdotal studies and news reports fuel interest in using cannabis for the treatment of PTSD sym (Gutierrez & Dubert, 2017) and severe epilepsy ("Medical Marijuana and Epilepsy," 2017). Many states have implemente nabis laws expressly for the treatment of epilepsy with CBD (NCSL, 2017). Despite the legislative landscape regarding CB epilepsy, more studies are needed to accurately assess the safety and efficacy of cannabis for the treatment of intractabl The American Academy of Pediatrics (Campbell, Phillips, & Manasco, 2017) and the American Epilepsy Society (Filloux, have made similar calls for further research.

Improvements in other symptomology might be attributed to the more general effects of cannabis—sedation, app stimulation and euphoria. Instead of cannabis treating underlying symptoms, these three general effects of cannabis ma symptoms and increase a subjective sense of well-being, which could improve self-reported quality of life in some patient Bain, Glickman, Carroll, & Zajicek, 2004; Greenberg et al., 1994).

Qualifying Conditions Without Clinical Evidence

Medical cannabis legislation includes a wide variety of qualifying conditions, some which have some scientifically supporta ficacy for symptomology, and some conditions in which there is no clinical evidence of effectiveness (see Table 4). MMP qu conditions are not held to the same rigor as FDA standards for safety and efficacy. The process for inclusion in a list of qu conditions is variable and often not dependent on the literature.

TABLE 4

Qualifying Conditions Without Clinical Evidence

Qualifying Conditions Without Cannabis Therapeutic Clinical Evidence	Shared Symptom With an Evidence-Based Qualifying Condition
Painful peripheral neuropathy, spinal cord injury, spinal cord diseases (arachnoiditis, Tarlov cysts, hydromyelia), neurofibromatosis, chronic inflammatory demyelinating polyneuropathy, causalgia, Arnold-Chiari malformation, syringomyelia, complex regional pain syndrome, chronic radiculopathy	Neuropathy
Residual limb pain, Sjogren's syndrome, interstitial cystitis, fibrous dysplasia, fibromyalgia, post laminectomy syndrome, sickle cell disease, arthritis, severe psoriasis, psoriatic arthritis	Pain
Intractable skeletal muscular spasticity, spastic quadriplegia, Tourette's syndrome, spinocerebellar ataxia, muscular dystrophy, dystonia, cerebral palsy, Parkinson's disease	Spasticity
Chronic traumatic encephalopathy, myoclonus	Seizures

Qualifying Conditions Without Cannabis Therapeutic Clinical Evidence	Shared Symptom With an Evidence-Based Qualifying Condition
	(continued)
Cystic fibrosis, anorexia	Wasting
Chronic pancreatitis	Nausea and vomiting
Nail-patella syndrome	Intraocular pressure (similar to glaucoma, which is not supported by quality evidence)
Huntington's disease, post-concussion syndrome, myasthenia gravis, lupus, hydrocephalus, mitochondrial disease, autism, decompensated cirrhosis, ulcerative colitis, migraine, Alzheimer's disease, amyotrophic lateral sclerosis	Diseases with multiple shared/similar symptoms

A review of all jurisdictional legislation indicates that, of the 31 jurisdictions with some legalized form of cannabis or c

Studies in MS patients indicate THC use may also cause indirect behavioral benefits in the subjective improvement in c

Pregnancy and neonates. The meta-analysis conducted by Gunn and colleagues (2016) indicates that exposure to c in utero is associated with an increased risk of decreased birthweight and higher odds of the newborn being placed in a n intensive care unit. The pooled dataset also showed a greater risk of anemia in mothers who had used cannabis during p cy. Only one preclinical study assessed the signaling pathways affected by prenatal THC exposure. This preclinical study that early exposure in utero disrupts endocannabinoid signaling and results in noticeable rewiring of mice fetal cortical cir (Tortoriello et al., 2014).

Presently, there are no reliable data for neurodevelopmental outcomes with early exposure to cannabis in neonatal life, either breastfeeding or secondhand inhalation (Jaques et al., 2014; Jutras-Aswad, DiNieri, Harkany, & Hurd, 2009; Volkow, Compton, & Weiss, 2014). THC can be detected in breast milk shortly after use; however, the effects of THC in breast m neonatal development and neurologic function is currently unknown (Baker et al., 2018). A number of low-quality observat studies attempted to elucidate patterns of use and developmental outcomes, but their methods were imprecise or lacked long evaluation (cited in Gunn et al., 2016)

Immunocompromised patients. Cannabis and cannabinoid preparations (gels, tinctures, drops, sprays) can pose a ser to immunocompromised patients if not prepared in a sterile environment (National Academies, 2017; Thompson et al., 2 Many jurisdictions require laboratory testing of cannabis for contaminants (Rough, 2017). The local Department of Heal MMP will provide more information on the quality-assurance practices in a specific jurisdiction.

Dyskinesis. It is highly likely that cannabis will exacerbate symptoms of poor balance and posture in patients with dyski disorders (Greenberg et al., 1994; GW Pharmaceuticals, 2015).

Altered cognition. Research regarding cognitive deficits is more abundant in healthy adult participants. Insufficient evid exists for cognitive effects in individuals with conditions that already may affect cognition (Weier & Hall, 2017). The research does exist suggests that patients who suffer from diseases with neurologic symptomology may show greater cognitive imp (reviewed in Walsh et al., 2017). This exacerbation of symptoms may decrease the overall effectiveness of cannabis as a t in such patients (Koppel et al., 2014). Clinical studies have shown that patients with MS who smoke cannabis at least once a show an increase in cognitive impairment and are twice as likely to be classified as globally cognitively impaired as those not use cannabis (Koppel et al., 2014).

Cognitive impairment by cannabis may be dose- and age-dependent (Crean et al., 2011; Solowij & Pesa, 2012). Insu clinical data exist on the cognitive impairment of healthy children and adolescents.

Mania and predisposition to mania. There is a significant relationship between cannabis use and subsequent exacerb and onset of bipolar disorder manic symptoms, with a roughly threefold increased risk of new onset of manic symptoms (G al., 2015). Individuals with bipolar disorder and a cannabis use disorder also have an increased risk (odds ratio = 1.4) of suicide attempts (Carrà, Bartoli, Crocamo, Brady, & Clerici, 2014). However, these findings are not conclusive for causality.

The observed correlation of cannabis use that precedes or coincides with the manic symptoms of bipolar disorder, as the association between cannabis use and new-onset manic symptoms and depressive disorders, suggests a tentative caus of cannabis on the development of bipolar disorder symptoms (Baethge et al., 2008; Lev-Ran et al., 2014).

Schizophrenia. While accumulating evidence suggests a link between cannabis exposure and schizophrenia, no r exists that can conclude that cannabis use causes schizophrenia (Walsh et al., 2017). Research supports a correlation be nabis abuse and significantly more and earlier psychotic relapses among schizophrenic patients (Linszen, Dingemans, & 1994). The literature on cannabis and schizophrenia is scant and spread across low-quality studies and morphologic stud a comprehensive overview of cannabis and psychosis, schizophrenia, and schizophreniform disorder can be found in W Radhakrishnan, and D'Souza (2014).

Preliminary evidence suggests cannabis use is associated with an earlier age of onset for schizophrenia among pre male patients by an average of 2.7 years (Large, Sharma, Compton, Slade, & Nielssen, 2011). Some propose that individ disposed to schizophrenia will experience their first schizophrenic episode earlier if cannabis is used daily in the prodroma (Large et al., 2011; Walsh et al., 2017). Cumulative cannabis exposure is associated with an increased rate of onset of p (Kelley et al., 2016).

Preexisting conditions. Individuals with asthma, bronchitis, emphysema, or any pulmonary disease should not use inh

Additionally, individuals with a history of suicide attempt or who are at risk for suicide and those with schizophrenia, bi
lar disorder, or other psychotic condition should be informed about the risks of cannabis use and be advised to not use c
Individuals with PTSD may experience distinct adverse outcomes if they also develop cannabis use disorder and should be m
closely (Walsh et al., 2017).

Overdose, abuse, dependence, and withdrawal

Overdose. Cannabinoid receptors are effectively absent in the brainstem cardiorespiratory centers (Glass, Faull, & Dragunow
This is believed to preclude the possibility of a fatal overdose from cannabinoid intake. References to overdose in cannabis
relate to situations in which patients have higher than normal blood concentrations of cannabinoids, usually from overconsu
of edible THC products (Cao, Srisuma, Bronstein, & Hoyte, 2016). These increased concentrations cause prolonged and oft
itating psychoses or hyperemesis syndrome. In some cases, these adverse effects can possibly increase the risk of fatalitie

Using biochemical information, Yamaori, Kushihara, Yamamoto, and Watanabe (2010) and Yamaori, Ebisawa, Okusl
Yamamoto, and Watanabe (2011) determined that cannabinoids, particularly CBD, competitively inhibit cytochrome P450 (CYP

Dosing Considerations

The only FDA-approved dosing guidelines for cannabinoids are for the drugs dronabinol and nabilone. These two formul

TABLE 5

Cost of Cannabinoids (U.S. Dollars)*

Drug Name	Price Averages
Sativex	A vial with 15 sprays costs $22 dollars/vial. Average dose of 5 sprays per day yields $7/day and $51/week. This price was derived from the 2005 Patented Medicine Prices Review Board of Canada (www.pm - prb-cepmb.gc.ca) report on Sativex. Available in Canada. Not available in the United States (undergoing FDA FastTrack trials).
Cesamet (nabilone) Schedule II Controlled Substance	~$2,000 for 50/1-mg capsules. Wide variance in effective dose per day (2mg to 10mg). Average dose of 2mg/day yields $80/day. FDA approved. Not covered by Medicare.
Marinol (dronabinol) Schedule III Controlled Substance	$140–$271.05 for 60/2.5-mg capsules, $150–$281.95 for 30/5-mg capsules, $500–$1,019.40 for 60/10-mg cap - sules. Average dose of 5mg–10mg/day yields $8–$16/day without insurance. FDA approved. Covered by Medicare. Insurance may cover 3%–99% of costs.
Medical cannabis	~$150–$200 for 28g as the low end of possible dispensary prices in the United States. (Colorado Depart - ment of Revenue, 2015; Hickey, 2014; "Is it Cheaper to Buy," 2016) A starting dose of 5% THC per cannabis cigarette and the goal of 2.5mg absorbed THC requires 0.60g–1g of cannabis per dose. For pain, this may require four or more doses per day. This regimen could result in $600/month for management of pain using smoked cannabis. Patient cultivation regulations may reduce this cost. (This price estimate is approximate for all products sold at U.S. medical dispensaries.)

*Price ranges collated from www.goodrx.com, www.webmd.com, and www.wellrx.com

Nursing Implications

Nurses need practical information to care for the increasing number of patients who utilize cannabis via an MMP as well larger population who self-administer cannabis as a treatment for various symptomatology or for recreational purposes. A previously, evidence for cannabis use in described conditions is limited by inadequate study and limited legal availability of ca for research purposes. Statutory authorization of cannabis use for certain conditions has been influenced by advocacy; a some qualifying conditions are present in statutes without evidence of their effect. Regardless of existing evidence, individu using cannabis and nurses will care for these patients. The studies and literature in this report should inform nursing practi represents the best interests of the patient.

Six Principles of Essential Knowledge

1. The nurse shall have a working knowledge of the current state of legalization of medical and recreational cannabis use

Critical to the care of patients who use cannabis is a working knowledge of the current state of legalization of medic recreational cannabis use. Knowledge of the federal government prohibitions and any guidance from the federal governmer the nurse to be well informed regarding potential questions about the legality of the use of cannabis as a medical treatmer

Although the use of marijuana pursuant to authorized MMPs conflicts with federal law and regulations, at present there controlling case law holding that Congress intended to preempt the field of regulation of cannabis use under its supremacy (Beek v. City of Wyoming, 2014; Mikos, 2012).

2. The nurse shall have a working knowledge of the jurisdiction's MMP.

Rules and statutes for the MMP include specific information for the particular jurisdiction. Each jurisdiction has wid different laws, rules, and regulations regarding medical cannabis. The jurisdiction's MMP or Department of Health will pro the specific details in each jurisdiction (NCSL, 2017). The laws regarding the MMPs are frequently changing. Safe nursing p includes an awareness of any regulatory changes that may affect their practice.

Usually, a medication is prescribed with a specific dose, route, and frequency. A health care provider, however, cann scribe medical cannabis; the provider certifies that the patient has a state qualifying condition. Several jurisdictions ident APRN as one of the health care providers who can certify that a patient has a qualifying condition. Access to medical canna only be obtained once the patient visits a state-authorized cannabis dispensary with a valid registration to the MMP. The of the certification process is different from any other substance recommended to a patient by a health care provider. An certification process presents a special set of implications (NCSL, 2017). A medical certification is not required for FDA-app cannabinoids (dronabinol and nabilone) and these medications may be prescribed without registration with an MMP.

Health care practitioners who certify that a patient has a qualifying condition need to consider all aspects of the pat history, diagnostic information, and mitigating concerns. Precautions should be taken in the consideration of, and decision

The care of patients by nurses in any capacity is grounded in ethical practice, that is, the moral principles that guide conduct. Beneficence, nonmaleficence, autonomy, fairness, and loyalty are some of the more common moral principles th one's conduct. In addition to personal ethics, nurses are also guided by standards of practice, which are based on profess ues, and/or a code of ethics. Awareness of one's own beliefs and attitudes about any therapeutic intervention is vital, as n expected to provide patient care without personal judgment of patients.

Although medical cannabis legislation is evolving and more jurisdictions are adopting MMPs, social acceptance may evolving at the same pace. In addition, scientific evidence for cannabis use exists for some but not all conditions. The evol legislation, social acceptance, and scientific evidence creates ethically challenging patient care situations. Ethical decision

The NCSBN National Nursing Guidelines for Medical Marijuana

Nursing Care of the Patient Using Medical Marijuana

Medical Marijuana Education in Pre-Licensure Nursing Programs

Medical Marijuana Education in APRN Nursing Programs

APRNs Certifying a Medical Marijuana Qualifying Condition

Recommendations

Essential Knowledge

1. The nurse shall have a working knowledge of the current state of legalization of medical and recreational cannabis use.

   The Drug Enforcement Agency (DEA) classifies cannabis as a Schedule I Controlled Substance. This classification not only prohibits practitioners from prescribing cannabis, it also prohibits most research using cannabis.[4]

   The process for obtaining cannabis for federally funded research purposes is cumbersome. Currently, the only legal source of cannabis for research purposes is grown in limited quantities at the University of Mississippi.[5] The DEA sets an annual quota for cannabis grown for research[6] purposes.

   Over 31 jurisdictions (including the District of Columbia), Guam, and Puerto Rico passed legislation legalizing cannabis for medical purposes. In these laws, the jurisdiction has adopted exemptions legalizing the use of cannabis for medical purposes. Although the use of marijuana pursuant to authorized MMPs conflicts with federal law and regulations, at present there is no controlling case law holding that Congress intended to preempt the field of regulation of cannabis use under its supremacy powers.[7]

   An increasing proportion of jurisdictions have also decriminalized or legalized recreational cannabis use.[8]

   The federal government's position on prosecuting the use of cannabis that is legal under applicable jurisdiction law has been set out in U.S. Department of Justice position papers. In 2009, the U.S. Attorney General took a position that discourages federal

spasticity (from MS or spinal cord injury).[20]

b. Adverse effects of cannabis use are influenced by the patient's condition and current medications

The patient's propensity for the following may be exacerbated by cannabis: increased heart rate, increased appetite, sleepiness, dizziness, decreased blood pressure, dry mouth/dry eyes, decreased urination, hallucination, paranoia, anxiety, impaired attention, memory, and psychomotor performance.[21]

Cannabis may exacerbate symptoms associated with asthma, bronchitis, and emphysema; cardiac disease; and alcohol or other drug dependence.[22]

Cognitive impairment by cannabis may be dose- and age-dependent.[23]

It is highly likely that cannabis will exacerbate symptoms of poor balance and posture in patients with dyskinetic disorders. Similarly, cannabis may worsen mental faculties in conditions that cause cognitive deficits. Patients who suffer from d5 (w)0.65 (o)0.55 (o)0.65 (o)0.55(128.357 5anc)0.5 (f)0

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Medical Marijuana Education in Pre-Licensure Nursing Programs

Purpose of the Guidelines

Over 31 US jurisdictions (including the District of Columbia), Guam, and Puerto Rico passed legislation legalizing cannabis for medical use. Several other jurisdictions also have legalized cannabis for medical use. Each medical marijuana program has unique characteristics. In the United States, cannabis is a Schedule I Controlled Substance. Therefore, medical cannabis is unlike most other therapeutics in that providers cannot prescribe cannabis, nor can pharmacies dispense cannabis. However, applicable jurisdiction statutes and rules provide for the manufacture, distribution, and use of cannabis for medical purposes.

These recommendations for curriculum content provide nurses with principles of safe and know1L know1L know1L know1hiad reo(Ct5h) Tc Td r cuty when8 Tr-0.034 T25 0

Recommendations

1. The nursing student shall have a working knowledge of the current state of legalization of medical and recreational cannabis use.

   The Drug Enforcement Agency (DEA) classifies cannabis as a Schedule I Controlled Substance. This classification not only prohibits practitioners from prescribing cannabis, it also prohibits most research using cannabis.[4]

   The process for obtaining cannabis for federally funded research purposes is cumbersome. Currently, the only legal source of cannabis for research purposes is grown in limited quantities at the University of Mississippi.[5] The DEA sets an annual quota for cannabis grown for research[6] purposes.

   Over 31 jurisdictions (including the District of Columbia), Guam, and Puerto Rico passed legislation legalizing cannabis for medical purposes. In these laws, the jurisdiction has adopted exemptions legalizing the use of cannabis for medical purposes. Although the use of marijuana pursuant to authorized MMPs conflicts with federal law and regulations, at present there is no controlling case law holding that Congress intended to preempt the field of regulation of cannabis use under its supremacy powers.[7]

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b. Adverse effects of cannabis use are influenced by the patient's condition and current medications

The patient's propensity for the following may be exacerbated by cannabis: increased heart rate, increased appetite, sleepiness, dizziness, decreased blood pressure, dry mouth/dry eyes, decreased

Some jurisdictions allow an employee of a hospice provider or nursing or medical facility, or a visiting nurse, to assist in the administration of medical marijuana.[35]

Check the most current MMP statute or rules.[46]

Check facility policy regarding medical marijuana administration.

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Medical Marijuana Education in APRN Nursing Programs

Purpose of the Guidelines

Over 31 US jurisdictions (including the District of Columbia), Guam, and Puerto Rico passed legislation legalizing cannabis for medical use. Several other jurisdictions also have legalized cannabis for medical use.* Each medical marijuana program has unique characteristics. In the United States, cannabis is a Schedule I Controlled Substance. Therefore, medical cannabis is unlike most other therapeutics in that providers cannot prescribe cannabis, nor can pharmacies dispense cannabis. However, applicable jurisdiction statutes and rules provide for the manufacture, distribution, and use of cannabis for medical purposes.

These recommendations for curriculum content will provide advanced practice registered nurses (APRNs) with principles of safe and knowledgeable practice to promote patient safety when caring for patients using marijuana and when certifying a medical marijuana qualifying condition for a specific patient.

Definitions

Cannabis. Any raw preparation of the leaves or flowers from the plant genus Cannabis. This report uses "cannabis" as a shorthand that also includes cannabinoids.

Cannabidiol (CBD). A major cannabinoid that indirectly antagonizes cannabinoid receptors, which may attenuate the psychoactive effects of tetrahydrocannabinol.

Cannabinoid. Any chemical compound that acts on cannabinoid receptors. These include endogenous and exogenous cannabinoids.

Cannabinol (CBN). A cannabinoid more commonly found in aged cannabis as a metabolite of other cannabinoids. It is nonpsychoactive.

Certify. The act of confirming that a patient has a qualifying condition. Many jurisdictions use alternative phrases such as "attest" or "authorize"; however, 13 of 29 jurisdictions use "certify" language in their statutes.

Clinical research. An activity that involves studies that experimentally assign randomized human participants to one or more drug interventions to evaluate the effects on health outcomes

Designated caregiver. An individual who is selected by the Medical Marijuana Program qualifying patient and authorized by the Medical Marijuana Program to purchase and/or administer cannabis on the patient's behalf. Also sometimes referred to as an "alternate caregiver."

Dronabinol. The generic name for synthetic tetrahydrocannabinol. It is the active ingredient in the U.S. Food & Drug Administration (FDA)-approved drug Marinol.

Endocannabinoid system. A system that consists of endocannabinoids, cannabinoid receptors, and the enzymes responsible for synthesis and degradation of endocannabinoids.

Marijuana. A cultivated cannabis plant, whether for recreational or medicinal use. The words "marijuana" and "cannabis" are often

* In Australia, cannabis for medical use is federally legal, with states allowed to implement as they see fit. Although Bermuda has not legislated use of marijuana, their Supreme Court ruled that citizens can apply for personal licenses to possess cannabis for medical use. Cannabis for medical use is federally legal in all provinces of Canada. In New Zealand, physicians may prescribe CBD and cannabis-based products.

Recommendations

1. The APRN student shall have a working knowledge of the current state of legalization of medical and recreational cannabis use.

   The Drug Enforcement Agency (DEA) classifies cannabis as a Schedule I Controlled Substance. This classification not only prohibits practitioners from prescribing cannabis, it also prohibits research using cannabis except under rigorous oversight from the government.[4]

   The process for obtaining cannabis for federally funded research purposes is cumbersome. Currently, the only legal source of cannabis for research purposes is grown in limited quantities at the University of Mississippi.[5] The DEA sets an annual quota for cannabis grown for research purposes.[6] Applications to use this source of cannabis must be made to the FDA, DEA, and National Institute on Drug Abuse.[7]

   Over 31 jurisdictions (including the District of Columbia), Guam, and Puerto Rico passed legislation legalizing cannabis for medical purposes. In these laws, the jurisdiction has adopted exceptions legalizing the use of cannabis for medical purposes. Although the use of marijuana pursuant to authorized MMPs conflicts with federal law and regulations, at present there is no controlling case law holding that Congress intended to preempt the field of regulation of cannabis use under its supremacy powers.[8]

   An increasing proportion of jurisdictions have also decriminalized or legalized recreational cannabis use.[9]

   Accordingly, the federal government's position on prosecuting the use of cannabis that is legal under applicable jurisdiction law has been set out in U.S. Department of Justice position papers. In 2009, the U.S. Attorney General took a position that discourages federal prosecutors from prosecuting people who distribute or use cannabis for medical purposes in compliance with applicable jurisdiction law; further similar guidance was given in 2011, 2013, and 2014.[10] In January 2018, the U.S. Office of the Attorney General rescinded the previous nationwide guidance specific to marijuana enforcement. The 2018 memo provides that federal prosecutors follow the well-established principles in deciding which cases to prosecute, namely, the prosecution is to weigh all relevant considerations, including priorities set by the attorneys general, seriousness of the crime, deterrent effect of criminal prosecution, and cumulative impact of particular crimes on the community.[11]

2. The APRN student shall have working knowledge of the principles of an MMP.

   MMPs are defined and described within the statute and rules of the specific jurisdiction. The relevant statute or rules are generally located through the jurisdiction's Department of Health and MMP.[12] Laws and rules regarding MMPs are an evolving process. Always confirm use of the most recent versions.

   A health care provider does not prescribe cannabis. The MMP will specify the qualifying conditions and the certifying process as well as the type of health care provider who can certify a qualifying condition.[13]

   Specific MMP statutes define the bona fide health care provider patient relationship necessary for authorization to certify a patient as having a qualifying condition. Some statutes require a preexisting and ongoing relationship with the patient as a treating health care provider; others note that the relationship may not be limited to issuing a written certification for the patient or a consultation simply for that purpose.[14] Verification of the existence of the required provider-patient relationship and documentation of the certification within the jurisdiction's MMP are essential.

   The MMP will specify whether an APRN can certify a qualifying condition and whether a specific course or training is required in addition to participate in certifying an MMP qualifying condition.[15] After the qualifying condition is certified, the patient registers with the MMP. Once registered, the patient can obtain cannabis from a jurisdiction-authorized cannabis dispensary.

   Procurement and administration of cannabis for medical purposes is limited to the patient and/or the patient's designated caregiver. The MMPs will specify whether designated caregivers are permissible as well as the applicable process for registration as a designated caregiver.[16]

   In some jurisdictions, the MMP allows an employee of a hospice provider or nursing or medical facility, or a visiting nurse, personal care attendant, or home health aide to act as a designated caregiver for the administration of medical marijuana.[17]

3. The APRN student shall have an understanding of the endocannabinoid system, cannabinoid receptors, cannabinoids, and their interactions between them.

   The endocannabinoid system consists of endocannabinoids, cannabinoid receptors, and the enzymes responsible for synthesis and degradation of endocannabinoids.[18]

   Discovered in 1973, this system includes a series of cannabinoid receptors throughout the body embedded in cell membranes that, when stimulated by endocannabinoids, are thought to promote homeostasis.[19]

   Endocannabinoids are naturally occurring substances within the body, while phytocannabinoids (plant substances that stimulate cannabinoid receptors) are found in cannabis.[20]

   The most well known of these cannabinoids is tetrahydrocannabinol (THC); however, cannabidiol (CBD) and cannabinol (CBN) are gaining interest in therapeutic use.[21]

4. The APRN student shall have an understanding of cannabis pharmacology and the research associated with the medical use of cannabis.

   Due to government restrictions on research involving cannabis, a surge of legislation has outpaced research, leaving nurses with few evidence-based guidelines for patients who use medical cannabis. Therefore, information regarding medicinal use of cannabis must be derived from models of high-quality evidence using randomized placebo-controlled studies. These particular studies are the most likely to elucidate causality in treatment and are considered the only trusted source of evidence for cannabis as a clinical intervention.[22] Research on cannabis is an evolving body of work. As with

perceived as inconsistent with the best interest of the patient (e.g., when an APRN recommends a treatment in which the APRN has a financial stake).

The APRN shall not certify an MMP qualifying condition for

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APRNs Certifying a Medical Marijuana Qualifying Condition

Purpose of the Guidelines

Over 31 US jurisdictions (including the District of Columbia), Guam, and Puerto Rico passed legislation legalizing cannabis for medical use. Several other jurisdictions also have legalized cannabis for medical use. Each medical marijuana program has unique

Recommendations

Essential Knowledge

1. The APRN shall have a working knowledge of the current state of legalization of medical and recreational cannabis use.

   The Drug Enforcement Agency (DEA) classifies cannabis as a Schedule I Controlled Substance. This classification not only prohibits practitioners from prescribing cannabis, it also prohibits most research using cannabis, except under rigorous oversight from the government.[4]

   The process for obtaining cannabis for federally funded research purposes is a cumbersome process and unlike any other drug research. Currently, the only legal source of cannabis for research purposes is grown in limited quantities at the University of Mississippi.[5] This DEA sets a quota for the amount of cannabis that can be grown for research studies.[6] Applications to use this source of cannabis must be made to the U.S. Food & Drug Administration (FDA), DEA, and National Institute on Drug Abuse.

   Over 31 jurisdictions (including the District of Columbia), Guam, and Puerto Rico passed legislation legalizing cannabis for medical purposes. In these laws, the jurisdiction has adopted exemptions legalizing the use of cannabis for medical purposes. Although the use of marijuana pursuant to authorized medical marijuana pro-

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and are the only trusted source of evidence for cannabis as a clinical intervention. Research on cannabis is an evolving body of work. As with any scientific literature, it is important to rely on the most recent high-quality evidence.

a. Current scientific evidence exists for the use of cannabis for the following qualifying conditions:
    - Moderate- to high-quality evidence exists for
        - cachexia
        - chemotherapy-induced nausea and vomiting
        - pain (resulting from cancer or rheumatoid arthritis)
        - chronic pain (resulting from fibromyalgia)
        - neuropathies (resulting from HIV/AIDS, multiple sclerosis [MS], or diabetes)
        - spasticity (from MS or spinal cord injury)[2]
    - No human studies have confirmed evidence for neuroprotective, anti-inflammatory, antitumoral, and antibacterial effects of

6. The decision to certify the MMP qualifying condition is not to be predicated on the existence of a qualifying condition alone. The APRN shall consider the available scientific evidence for the specific qualifying condition prior to certifying the qualifying condition including:
    - present scientific evidence for cannabis use with the specific qualifying condition
    - adverse effects according to the patient's clinical presentation
    - variable effects of cannabis
    - principles of dose titration
    - risks to particular groups of patients, such as those of childbearing age, pregnant, neonates, adolescents, and individuals at risk for substance abuse
7. The APRN shall determine the ongoing monitoring and evaluation of the patient.

Active participation via ongoing monitoring, patient diaries, follow-up appointments, and evaluation of effects and response to [illegible]

3 U.S. Department of Transportation. National Highway Traffic Safety Administration (NHTSA). (2107). Marijuana-Impaired Driv ing A Report to Congress. Retrieved from https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812440-marijuana-impaired-driving-report-to-congress.pdf

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Quality Research, Evidence of Effectiveness of Medical Cannabis

The research studies in the table below were each evaluated using the GRADE scale (Cochrane Methods Bias, n.d. is GRADE?," 2012), a tool for assessing the quality of evidence, elucidating high, moderate, low, and very low evid quality. All randomized experimental studies are initially rated as high quality; and observational studies began at low-q ity rating. In this assessment, a study loses quality if it has serious risk of bias (from improper blinding of subjects and ass nonrandom sorting, patient dropout), confounding factors, imprecision, or inconsistency. Studies gain quality if the data sh large effect or dosage effect, or the study adequately controlled confounding factors.

The table below presents the moderate- to high-quality data asserting a positive effect of cannabis for qualifying cond The table preferentially displays therapeutic effects. Adverse effects and/or the absence of effect are not included in this tab for when they add perspective to currently debated therapeutic applications. For example, Hallak and colleagues (2010) d no effect of CBD on schizophrenia symptomology. This is worth noting because CBD is often described as an antipsychotic & Guy, 2006), though the details and applicability of this effect continue to be researched.

The table groups the studies according to conditions with significant evidence and are preferentially grouped by quali condition. The conditions are listed in bold and subcategories are listed in italics. For example, Freeman et al., 2006, has

Study	Drug (Dosage), Delivery	Grade	Results
Cancer			
Johnson et al., 2010	THC:CBD (22mg–32mg/day THC, 20mg–30mg/day CBD), oromucosal	Moderate to low	THC:CBD caused 30% reduction in pain from baseline in pa - tients unresponsive to opioids. THC:CBD patients used a medi - an oral morphine dose lower than other treatments. THC:CBD had a significantly improved constipation score. (OR THC:CBD = 2.81, p = 0.006) N = 177
Chronic Pain			
Narang et al., 2008	Dronabinol (10mg and 20mg THC), orally	Moderate	Total pain relief at 8 hours (TOTPAR) improved (20mg p = 0.01, 10mg p = 0.05). Evoked pain (ESPID) decreased (20mg, 10mg p < 0.05). Significant reduction of pain over time (baseline vs week 2, p = 0.01; week 1 vs week 3, p = 0.05; week 2 vs week 4, p = 0.05). N = 30
Rheumatoid Arthritis			
Blake, Robson, Ho, Jubb, & McCabe, 2006	Sativex (max 6 doses daily), oromucosal	Moderate to low	Improvements in morning pain on movement (p = 0.044), morning pain at rest (p = 0.018), quality of sleep (p = 0.027), (DAS28 p = 0.002), and pain at present (p = 0.016). Results ap - plicable to female patients. N = 31
Epilepsy			
Dravet syndrome			
Devinsky et al., 2017	CBD (20mg/kg/day), oromucosal	High to moderate	CBD decreased the median frequency of convulsive seizures per month (compared to placebo, p = 0.01). The Caregiver Glob - al Impression of Change scale showed improvement in 62% of the CBD group (from baseline, p = 0.02). The frequency of total seizures of all convulsive typ tc

Study	Drug (Dosage), Delivery	Grade	Results
Multiple Sclerosis			
Aragona et al., 2009			

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