Marijuana use: implications for life insurance

Did you know that cannabis is the most abused substance worldwide? Find out more about cannabis use and the implications for life and health insurance in this fascinating article by Dr. Marianne Cumming, MSc, MD, Medical Manager for Swiss Re's Life & Health Products Division.

Introduction

Globally, cannabis is the most widely used substance of abuse with estimates of between 119 million and 224 million users worldwide. The most recent United Nations World Drug Report indicates cannabis use is highest in North America, Europe and Australia and New Zealand (1). According to the National Survey on Drug Use and Health (United States), non-medical marijuana accounts for more than 80% of all "illicit" drug use in the US with almost 8% of the US population reporting current marijuana use (2). Until recently, marijuana could be easily categorized along with other illicit, also termed illegal, drugs. This distinction between illicit (illegal) compared with licit (legal) drugs easily separated these categories of drugs. Recently, however, the general trends towards decriminalization and the further step of legalization of marijuana use in some jurisdictions mean the lines are blurred. Legalized medical marijuana brings its own challenges with much debate about indications, dosages and current practice. With wider availability and misconceptions about safety, marijuana use appears to be increasing, particularly at younger ages. Potent plants, lack of standard formulations, and limited long term carefully designed studies contribute to the unknown risks associated with marijuana use. These have important implications for life and health insurance.

Marijuana: the product

Marijuana, the dried leaves and flowering tops from the hemp plant, Cannabis sativa, is the most common form of cannabis used in North America. Cannabis resin, the pressed secretions of the plant known as hashish, may be more common in Europe. Cannabis oil, a product of distillation, is another product from the hemp plant. Cannabis contains more than 400 active chemicals, including more than 60 unique cannabinoids, which warrant further characterization.
The major psychoactive ingredient, delta-9-tetrahyrdocannabinol (THC) is the active ingredient that determines the potency of marijuana.

Another active ingredient, cannabidiol (CBD), is thought to offset some of THC’s negative effects, but it is sometimes bred out to increase the psychoactive THC potency.

Inhaled marijuana smoke produces rapid excitatory, psychoactive effects which peak at 15 to 30 minutes and last up to 4 hours. An estimated 2 to 3 mg of inhaled THC may produce psychoactive effects. Non-medical (recreational) use commonly involves smoking of the dried plant. THC content in the dried plant has increased compared to 40 years ago and may range from 1 to 20%. One joint of dried marijuana may contain 25-150 mg of THC. THC may also be extracted to create a highly concentrated (60-99%) product to be ingested by smoking or vaporization.

Marijuana ingested mixed with food products has a delayed onset of psychoactive effects ranging from 30 minutes to 3 hours which may last up to 12 hours. An estimated 5 to 20 mg of ingested THC may produce psychoactive effects. THC content in food products varies widely, but a single marijuana cookie may contain up to 100 mg (3).

Interestingly, marijuana for medical use has not been regulated in the same manner as other medications derived from natural sources. In the US, marijuana is classified by the Drug Enforcement Agency (DEA) Controlled Substances Act as a Schedule 1 drug which means it is not recognized as having any current acceptable medical use and it is consider high potential for abuse. Legalized medical marijuana at the state level predates provisions for standard medical formulations.

The most common form of medical marijuana in the USA is dried plant products without standard THC potency and some users grow their own supply. In Canada, dried plant is also available for medical use, through a Health Canada supplier or with a personal production license. Synthetic THC formulations, indicated for chemotherapy-induced emesis and HIV or cancer-related anorexia, are available in both US and Canada. An herbal cannabis extract in the form of an oral spray is approved for neuropathic and cancer pain in Canada and is an investigational drug in the US.

**Marijuana: medical use**

At the time of writing, medical marijuana programs are in place in 23 US states and Washington DC. An additional 11 states have limited access laws, and legislative activity around marijuana continues. Medical marijuana is available all across Canada.
In general, the intent of legalization for medical use is to provide compassionate treatment for individuals suffering from debilitating medical conditions. Although marijuana has reportedly been used for medical purposes for over 100 years, it has not yet been extensively studied as a therapeutic agent.

The expanding lists of indications for medical marijuana are not yet supported by long term efficacy or safety studies. Indications may include malignant and non-malignant pain conditions, chemotherapy-induced nausea, cachexia and weight loss related to cancer or HIV disease, muscle spasticity, multiple sclerosis, Parkinson’s disease, spinal cord injuries, seizure disorders, glaucoma and other less common conditions. Treatment guidelines, optimal dosages and formulations of medical marijuana are not well delineated.

Limited studies have identified medical marijuana users as a potentially higher risk group. Medical marijuana use is more common in young males with chronic pain. Chronic pain medical marijuana users are more likely to have moderate-to-severe widespread pain, more likely to be tobacco users and more likely to have problems with alcohol and other substance (cocaine) abuse. (4,5).

**Marijuana: medical risks**

Marijuana's behavioral effects may include euphoria, relaxation, altered time perception, impaired concentration, memory and learning, as well as possible panic or paranoid reactions. Physiologic effects may include increased heart rate, respiratory rate and diastolic blood pressure, dry mouth and throat, and increased appetite.

Colorado's legal non-medical retail sale, purchase and possession provisions, which were implemented in 2014, have led to expected medical consequences including increased health care utilization, emergency room visits, and exacerbation of psychiatric conditions. Unexpected consequences include an increase in marijuana-related burns, and unintentional ingestion of edible products, particularly in children, leading to hospital and intensive-care unit admissions (6).

Marijuana dependence is reported in about 10% of users. Studies of adverse effects of marijuana are limited by sample size and selection, study duration, and confounding factors. Systematic reviews of available studies report a probable association between marijuana smoking and chronic bronchitis, and a possible association with respiratory (lung, head and neck) and bladder cancers. Marijuana use is associated with mental disorders, most consistently with psychosis, particularly with young age (<18 years) of initiation or with longer duration of use.
Associations with depression, suicide, other substance abuse, impaired educational attainment and cognitive impairment have been reported. Individuals with mental disorders are more likely to be cannabis users, accounting for 72% of cannabis users and 82% of those with Cannabis use disorders. Marijuana has also been associated with increased risk of infections, ischemic stroke and other vascular events (7-16).

While marijuana's morbidity risk is recognized, mortality risk is less clear. Toxicity and lethal dose data related to marijuana are limited but it is believed to have a high safety margin with case reports primarily of coma, particularly children, after oral ingestion. However, marijuana is associated with other substance misuse and has been associated with increased mortality in substance users in treatment. While deaths from cannabis overdose alone are unlikely, it is more often found with other drugs in fatal overdose drug deaths and is also associated with cardiovascular deaths and accidental death risk (motor vehicle crashes, intentional injuries) (17).

**Marijuana: detection and impairment**

Marijuana THC metabolites may be detected in saliva, blood, and urine with urine as the preferred sample because of higher concentration and longer detection times. A positive urine THC indicates marijuana use in the recent past but this depends on the specific pattern of use. With chronic use, it is difficult to determine whether a positive test indicates current use or is a result of residual drug being excreted over time. A positive result may indicate acute marijuana use within 1 to 3 days or chronic use for 3 or more weeks.

Marijuana is second to alcohol as the most common non-medical drug associated with impaired driving. Marijuana metabolite levels indicate presence of the drug but do not necessarily correlate with behavior impairment. In contrast to alcohol which has well delineated predictable levels and limits, there is no widely accepted limit for impairment with other drugs including marijuana. State laws for impaired driving with drugs include “per se” laws that indicate it is illegal to operate motor vehicle with any detectable blood level of prohibited drug and/or its metabolites and other state laws which define “drugged driving” as driving when a drug “renders the driver incapable of driving safely” or “causes the driver to be impaired”. Since retail availability of marijuana in Colorado, an increase in marijuana positive fatal crashes has been reported (18) and cannabis has been associated with a 4-fold increased risk of traffic collisions (19).
Marijuana: Implications for insurance

Marijuana is already the most common non-medical ("recreational") drug worldwide. Global cannabis cultivation is widespread while limited legal access and provisions for medical use are recognized in several countries. Trends towards public acceptance, decriminalization, medical use and perceptions of safety all will likely contribute to further increased prevalence of use, particularly at younger ages. Public interest and legislative activities are likely to continue.

Prevalence of marijuana use in insurance applicants and policy holders is presently not well delineated. Only a minority of insurance companies routinely test for marijuana metabolites during the application process. Preliminary insurance applicant data suggests an estimated prevalence of urine THC in the 3-4% range or likely half compared to the general population. Positive urine THC is more common in applicants who are also positive for tobacco metabolites (urine cotinine) compared with cotinine negative applicants.

Underwriting risk assessment may be enhanced by the addition or expansion of urine drug screening for marijuana and possibly other substances. At time of underwriting, careful consideration of admitted or detected marijuana use is warranted. An underwriting focus on details of marijuana use, quantity, frequency and method of ingestion, use of alcohol or other drugs including prescription drugs with abuse potential, identification of associated psychiatric and medical conditions, social and occupational factors and level of functioning will be beneficial for accurate risk classification.

Research studies to determine optimal use of cannabis products for medical impairments have been limited, given marijuana's federal status as a Schedule 1 drug with no recognized legitimate medical use. Presently, medical marijuana may be used in place of established and effective treatments for a variety of medical conditions. Renewed scientific interest will hopefully lead to further studies to better define medical uses, dosages, delivery systems and the safety profile of medical marijuana products. Studies will also hopefully lead to better understanding of the medical and societal risks associated with cannabis products.

Limited data suggests that, in isolation, marijuana itself has a high median lethal dose and a relatively favorable safety profile. However, other studies have demonstrated an association of marijuana with excess death risk, including traffic fatalities, most often through association with the frequently co-existing mental disorders or other substance abuse.
Through these associations, marijuana use may contribute to increased accidental death risk particularly at younger ages. The impact is potentially significant given low expected death rates.

In general, cannabis psychoactive potency, defined by THC content, has increased over recent years. Blood levels of marijuana metabolites do not necessarily correlate with impairment. Research to further define impairment in relation to drug levels is ongoing. Current state impaired driving laws rely on subjective criteria to determine impairment status, which are open to interpretation.

Legal provisions, public acceptance and potentially expanded drug testing may lead to changes in patterns of applicant disclosure of marijuana use. With medical use, it may be challenging during claims assessment to correlate THC levels with prescription instructions given the lack of standardized formulations or dosages and limitations of drug level analysis. Policy language, which may use the terms "legal" and "illegal" to differentiate drugs according to categories of risk, warrants further review. With legalization of marijuana, the lines are blurred and these distinctions may no longer apply.

Marijuana use is an important consideration for life insurance companies. Current evidence related to the possible benefits and risks associated with marijuana is limited but ongoing studies should contribute to further understanding of risks relevant for life insurance companies.

References


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