With medical marijuana legalized in more than half of the United States, more and more home care and hospice patients are taking it to help them manage a variety of symptoms. This primer provides important details about its use as a medical and recreational drug.

Marijuana: The Basics

Marijuana is a green or gray mixture of dried, shredded flowers and leaves of the hemp plant known as Cannabis. It has been used since ancient times for therapeutic, spiritual, and recreational purposes. The drug was removed from the United States Pharmacopeia in 1942. The Controlled Substance Act of 1970 made marijuana use illegal as a Schedule I category drug because of its high potential for abuse.

While using marijuana is considered safer than consuming alcohol or opioids, it can be addictive. Approximately 9% of users becoming addicted. That number increases in those people who start using marijuana at a young age or individuals who are daily users.

Active Ingredients

Of the roughly 400 chemicals found in the cannabis plant, Tetrahydrocannabinol (THC) affects the brain the most and has the greatest psychoactive properties. It’s the chemical that gives marijuana users a “high.” The other major ingredient is Cannabidiol (CBD).

When the entire plant is used as the drug, an “entourage effect” occurs. This means that by combining both psychoactive and non-psychoactive elements of the plant, the effect is much more powerful and therapeutic than the individual elements alone. The non-
psychoactive components help to modulate the psychoactive components to reduce unpleasant side effects. The entourage effect also helps enhance the plant’s pain management properties.

After smoking or ingesting marijuana, the active, psychoactive components attach to cannabinoid receptors (CB1 and CB2) in the body. These receptors are found throughout the body but in greater quantities in the brain. They are also found in the immune system (spleen and lymph nodes), resulting in a suppressed immune response.

**FDA-Approved Marijuana Medications**

To-date, the Food and Drug Administration has not approved synthetic marijuana for medical use. However, several drugs containing elements of the drug have been approved, including:

- **Epidiolex**, which contains purified cannabidiol for the treatment of seizures associated with Lennox-Gastaut syndrome or Dravet syndrome in patients 2 years of age and older.

- **Marinol** and **Syndros**, which contain the active ingredient dronabinol (an element of marijuana) for the treatment of anorexia associated with weight loss in AIDS patients.

- **Cesamet**, which contains nabilone, a synthetic cannabinoid for the treatment of nausea and vomiting associated with chemotherapy in cancer patients who have failed to respond adequately to conventional antiemetic treatments.

**Marijuana Plant Types**

There are four main marijuana plant types that each have different properties:

<table>
<thead>
<tr>
<th>Plant Type</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis indica</td>
<td>A strain of marijuana that is smaller and stouter. The psychotropic effect from an indica strain is characterized by lethargy and body sluggishness. Most indica varieties</td>
</tr>
</tbody>
</table>
Plant Type | Properties
---|---
Cannabis sativa | A strain of marijuana that typically produces a euphoric, energetic, or cerebral high (marijuana high). Sativas generally originate in regions along the equator (Thailand, southern India, Jamaica, Mexico).
Cannabis ruderalis | A strain of marijuana that is very short and stalky. It produces only trace amounts of THC. It is not commonly grown for industrial, recreational or medicinal use.
Hybrid | Most marijuana produced and grown is a combination of the above strains, particularly indica and sativa. Hundreds of different cannabis hybrid plants are used for various therapeutic actions.

There are three broad types of marijuana based on the ratio of the predominant plant types:

- **Type 1 (THC-dominant)** – High THC, low CBD (high euphoric effects. Commonly used for recreational use)
- **Type 2 (THC & CBD)** – Mixed THC and CBD cultivars (psychoactive, but not as edgy as THC-dominant types)
- **Type 3 (CBD-dominant)** – High CBD, low THC (non-euphoric effects)

Studies have shown that a THC-to-CBD ratio of 1:1 has the most therapeutic potential and least amount of adverse effects.

**Common Effects of Cannabis Indica and Sativa**

**Cannabis Indica:**

- Provides relaxation
- Reduces stress
• Relaxes muscles and spasms
• Reduces pain, inflammation, headaches and migraines
• Helps sleep
• Reduces anxiety
• Reduces nausea
• Stimulates appetite
• Reduces intra-ocular pressure
• Anti-convulsant
• Tiredness and “fuzzy” thinking

Cannabis sativa

• Stimulating and energizing
• Increases sense of well-being, focus, and creativity
• Reduces depression
• Elevates mood
• Relieves headaches, migraines, and nausea
• Increases appetite
• Increases feelings of anxiety and paranoia

Other names for marijuana:
Bud, blunt, chronic, dab, dope, ganja, grass, green, hash, herb, joint, loud, mary jane, mj, pot, reefer, sinsemilla, skunk, smoke, trees, wax, weed

Marijuana Consumption

There are four main methods of consuming marijuana: inhalation, oral, sublingual, and topical. Each method has unique characteristics that make it appropriate for some people and their reasons for using drug.
Inhalation (Smoking)

Inhalation is the fastest delivery method. When a person inhales marijuana, most of the cannabinoids enter the body through the lung and then directly into the bloodstream. The effect occurs within minutes with peak effects around the one-hour mark and total duration of effects around two hours. This allows for a more controlled dose.

<table>
<thead>
<tr>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>minutes</td>
<td>15–30 minutes</td>
<td>2–3 hours</td>
</tr>
</tbody>
</table>

Marijuana can be inhaled in different ways: in hand-rolled cigarettes (joints), vaporized (vapes), in pipes, or water pipes (bongs). In these cases, the flowers of the plant are burned, and the active components are released into the inhaled smoke. Vaporizing is becoming more popular. It allows the person to avoid inhaling smoke. The cannabis is heated to a temperature which allows the active ingredients to be released as vapor that is then inhaled. A single intake of smoke is called a “hit.”

Oral

Oral consumption includes edibles, tinctures, capsules, oils and liquids like tea. These are a popular option for those who cannot or do not want to smoke cannabis. Orally consumed cannabis enters the bloodstream after it is digested and absorbed by the intestines. Edibles, such as brownies, cookies, candy, chocolate, pizza, gummy bears, and drinks, can also be a source of nutrients for patients with nausea or digestive disorders. Orally consumed marijuana takes longer to activate within the body—one half hour to an hour—but produces a longer, lasting effect.
Sublingual

The oral mucosa has a large number of blood vessels that can absorb cannabinoids. The drug is usually placed under the tongue and held in the mouth. Edibles such as lollipops or lozenges and products that include dissolvable strips, sublingual sprays, or tinctures are considered sublingual. Because it is quickly absorbed into bloodstream, the onset of sublingual marijuana is often quicker than oral consumption, which must go through the digestive system.

Topical

Topical products include lotions, salves, bath salts, and oils that are applied to the skin. These products are often used for arthritis and joint pain. The drug penetrates the skin and reduces pain and inflammation. These products work well on localized pain and are non-psychoactive. Onset of action occurs within minutes locally, with duration times lasting one to two hours. Very little product reaches the brain.
Other Intake Forms

In addition, there are marijuana concentrates such as hash, wax, tinctures and oils.

Dosage

Marijuana can be effective therapeutically at a wide range of doses. Each patient’s metabolism, preferred route of administration, and level of prior experience with the drug affect the dosage needed. The exact potency of marijuana is often difficult to determine because it depends on the potency of the cannabis used to infuse the product. The golden rule is to “start low and go slow.” Unlike most other drugs, the patient determines the effectiveness of the dosage over time and will increase it as needed.

For most medications, a higher dose will result in a stronger therapeutic effect and a higher likelihood of adverse effects. Cannabis does not follow this pattern. For most marijuana users, gradually increasing the dose will at first result in stronger effects; but after a certain point (unique to each individual), subsequent dosage increases can result in weaker therapeutic effects, accompanied by an increase in side effects. Identifying the optimal dose of marijuana may involve trial and error.
Sudden discontinuation of marijuana use does not produce significant withdrawal-like signs or symptoms, although temporary changes in sleeping pattern, mood, or appetite following discontinuation have been reported.

Generally, when using inhalation via smoking or vaporization, the patient should take no more than 3 inhalations per day/session, waiting 2 minutes between puffs to determine if more is needed. If an oral dose is taken, the patient should wait 60 to 120 minutes between intake to gauge the strength of the effect before taking more.

The following general dosing guidelines apply:

<table>
<thead>
<tr>
<th>Dosage</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 – 15 mg of active cannabinoids (THC, CBS, etc.)</td>
<td>Daily dose for naive users (initial use)</td>
</tr>
<tr>
<td>30 – 100 mg of active cannabinoids (THC, CBS, etc.)</td>
<td>Daily dose for patients who consume marijuana on a regular basis</td>
</tr>
</tbody>
</table>

**Conditions Most Commonly Treated with Marijuana**

Because of Marijuana’s illegal status, research related to its efficacy to treat specific conditions is limited. The plant is commonly prescribed to manage the following conditions and symptoms:

<table>
<thead>
<tr>
<th>Condition/Symptom Treated</th>
<th>Actions of Marijuana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic back pain, rheumatoid arthritis joint pain, injury-related pain, and neuropathic pain</td>
<td>May reduce inflammation-related pain and may reduce neuropathic pain when used in combination with other drugs. Some studies suggest that marijuana increases the perception of pain, so use with caution for</td>
</tr>
<tr>
<td>Condition/Symptom Treated</td>
<td>Actions of Marijuana</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>pain management. Strains with more <em>indica</em> are more effective pain management.</td>
<td></td>
</tr>
<tr>
<td>Cancer pain</td>
<td>Marijuana potentiates analgesic effects when used with narcotics, thereby diminishing the dosage of opioids needed for pain relief associated with cancer.</td>
</tr>
<tr>
<td>Migraines</td>
<td>Strains with more <em>indica</em> (CBD) help with migraines.</td>
</tr>
<tr>
<td>Sleep disorders</td>
<td>Reduces REM sleep and the vivid dreams that occur during this stage. It reduces the quality and duration of sleep.</td>
</tr>
<tr>
<td>Depression</td>
<td>Has an anti-depressant effect and can impair memory.</td>
</tr>
<tr>
<td>Epilepsy/Seizures</td>
<td>May inhibit brain processes thought to cause seizures.</td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>Reduces spasticity and pain in treatment-resistant patients.</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>Reduces pressure in the eye.</td>
</tr>
<tr>
<td>Increases appetite to help with weakness and wasting of the body. Strains with more <em>indica</em> help with anorexia.</td>
<td></td>
</tr>
<tr>
<td>Acts as an anti-emetic. Increases appetite and reduces chemotherapy-related nausea. Strains with more <em>indica</em> help with nausea and vomiting.</td>
<td></td>
</tr>
<tr>
<td>Helps prevent the memory of the underlying trauma. It also helps the person attain emotional wellbeing. It has an anti-</td>
<td></td>
</tr>
</tbody>
</table>
It’s important to know that while marijuana can positively impact many untoward symptoms, there may be other drugs that produce better results. An example is marijuana’s ability to reduce pressure in the eye in people with glaucoma. Other drugs typically produce better results.

Effects of Marijuana Use

Use of marijuana may produce the following effects:
Side Effects of Marijuana Use

While additional research needs to be done to determine short and long-term side effects of marijuana use, the following side effects have been identified:

- Problems with memory and learning
- Addiction to other substances (e.g., opiates)
- Breathing problems when smoked (like cigarette use), including asthma, bronchitis and emphysema
- Increased risk of motor vehicle accidents
- Poor life achievement
- Abnormal brain development in the younger population
- Psychiatric disturbances
- Depression
- Anxiety
- Suicidal ideations
- Impairment in judgment, especially when used with alcohol
- Poor ability to cope with stressful situations
- Cannabis hyperemesis syndrome (with frequent or excessive use)
- Infertility
- Impotence
- Chronic bronchitis
- Chronic obstructive pulmonary disease* with prolonged use, like the actions of tobacco
- Asthmatic attacks
- Increased risk of stroke
Depressed immune system
Periodontal disease and thrush
Problems with child development during and after pregnancy

*Inhaled marijuana is believed to contain as much as three times the amount of carcinogens as cigarettes.

**Overdose**

There are no reports of teens or adults fatally overdosing (dying) on marijuana alone. Cannabinoid receptors are absent in the brainstem cardiorespiratory centers, which precludes the possibility of a fatal overdose from cannabinoid intake. However, overdosage may occur and is known as “greening out.” Symptoms include:

- Nausea
- Vomiting
- Diarrhea
- Tachycardia
- Dyspnea
- Sweating
- Spasms
- Tremors
- Anxiety
- Panic attacks
- Paranoia
- Incoordination
- Disturbed sleep
- Hyperemesis syndrome
- Hallucinations
Extreme psychotic reaction

These symptoms are usually self-limiting and resolve within 12 to 24 hours.

Treatment for Cannabis Overdose

While symptoms of overdose can be frightening and uncomfortable, to date, there are no reports of anyone dying from an overdose of cannabis. Treatment for cannabis overdose is supportive and may include the following:

Administration of activated charcoal to help absorb and clear edible cannabis products from the system

Antiemetics to treat nausea

Intravenous fluids to treat electrolyte imbalances from nausea and vomiting

Benzodiazepines to treat acute anxiety

Beta-blockers to treat tachycardia

Oxygen to treat respiratory distress

Close observation to ensure the patient does not cause self-harm from a psychotic reaction (severe paranoia, disorganized thinking, hallucinations, and cognitive impairment)

Oral antipsychotic agents to treat psychosis

Withdrawal Symptoms

Studies suggest that there is a withdrawal syndrome when chronic marijuana use is abruptly discontinued. The symptoms of withdrawal syndrome include insomnia, loss of appetite, physical symptoms, and restlessness initially, then irritability/anger, and vivid and unpleasant dreams after a week of non-use.
Authorization for Medical Marijuana Use

If a patient lives in a state that has legalized the use of medical marijuana and has a disorder that qualifies him or her for use of the drug, the physician issues an authorization for use rather than a prescription.

An authorization for use does not provide details about the cannabis strain, dose, or frequency of consumption. Depending on State law, the patient takes the authorization form to a jurisdiction-authorized cannabis dispensary. Recreational stores that provide medicinal products employ personnel who’ve been trained in the dispensing of medicinal cannabis to patients. Before a patient can receive marijuana for medicinal use, he or she must apply for a state-issued identification card.

Medicinal cannabis isn’t available in traditional pharmacies where no trained personnel are available for providing guidance and recommendations to patients.

Obtaining and administering marijuana for medical purposes is limited to the patient and/or the patient’s designated caregiver. Designated caregivers must be registered with the State’s Medical Marijuana Program (MMP). In some States, the MMP may allow a hospice or home health clinician to act as a designated caregiver for the administration of medical marijuana, although on a general basis, nurses should not administer cannabis products unless the product is an FDA-approved synthetic THC drug. If State law allows, a clinician who acts as a designated caregiver must be registered with the State’s MMP.

While State law may make marijuana legal in the state, it’s important to note that Federal law still specifies use of marijuana as illegal. However, Federal law does not allow prosecution of healthcare providers or clinicians who issue authorizations of use and perform teaching and training activities for patients who elect to take marijuana for medicinal purposes. Agencies should check with their State boards of nursing for guidance on legal issues affecting nursing practice in their state.
Storage and Disposal Considerations

- Keep marijuana out of the reach of children, minors, and non-registered individuals.
- Store all cannabis products in a locked area.
- Keep the product in the original child-resistant packaging.
- Store the product in a dry, cool place.
- Check for expiration dates.
- Disposal of unused cannabis products should be done according to the DEA’s Disposal Act. Contact the DEA Registration Call Center (800-882-9539) to locate a collection receptacle.

Potential Interactions Between Marijuana and Other Drugs

When it comes to marijuana, most potential interactions that have been identified are relatively mild. In fact, some drugs seem to work favorably together with marijuana. While additional research is needed, the following interactions have been observed:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Interactions with Marijuana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-diabetic drugs (insulin, oral agents)</td>
<td>Potentiates the action, possibly resulting in hypoglycemia</td>
</tr>
<tr>
<td>Anticoagulants</td>
<td>Potentiates the action, possibly resulting in easy bleeding or bruising</td>
</tr>
<tr>
<td>Opioids</td>
<td>There is a bidirectional modulatory relationship between cannabis and opioids in which the body’s natural opioid system and the body’s natural cannabinoid system work together, improving pain</td>
</tr>
</tbody>
</table>
### Drug Interactions with Marijuana

<table>
<thead>
<tr>
<th>Drug</th>
<th>Interactions with Marijuana</th>
</tr>
</thead>
<tbody>
<tr>
<td>management and allowing opioid dosages to be lowered.</td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines, some antidepressants, and barbiturates</td>
<td>Potentiates the effects, possibly causing excessive sedation.</td>
</tr>
<tr>
<td>Fluoxetine (Prozac)</td>
<td>May lead to hypomania in which the person feels irritated, nervous, jittery, and excited.</td>
</tr>
<tr>
<td>Antipsychotics (clozapine, olanzapine, haloperidol, and chlorpromazine)</td>
<td>THC can decrease serum concentrations of these drugs, decreasing their effectiveness at usual dosages.</td>
</tr>
<tr>
<td>Theophylline</td>
<td>Cannabis decreases blood levels</td>
</tr>
</tbody>
</table>

### Home Health and Hospice Considerations

The following points are important when working with patients using medical marijuana in the home setting:

- Encourage the patient to keep a journal (see attached) that includes the level of symptom discomfort, dose ingested or smoked, and level of relief provided.

- During each patient visit, assess for and report adverse effects of marijuana use and abuse, including hypotension, sedation, nausea, vomiting, disorientation, dizziness, pulmonary distress, decreased reaction time, reduced motor skills, decreased urination, diminished cognitive ability, hallucinations, increased anxiety, paranoia, impaired memory, fatigue, suicidal thoughts, nausea, weakness, lack of energy, and vertigo.

- Fully document the following in the clinical record:
  - Adverse symptoms being treated with the marijuana
  - Type, route, amount, and frequency of marijuana consumed
The patient’s response to the therapy
Any adverse effects

- Ensure that the patient’s marijuana use is discussed with other caregivers during the interdisciplinary conference so that all visiting clinicians can observe the patient’s experience with the drug during their visits.

- Home care and hospice clinicians may not administer cannabis products to patients unless State law allows, and then the clinician must be registered with the MMP.

- When caring for a patient consuming cannabis edibles, it’s important to teach the patient that the effects are delayed and additional dosages should not be consumed until sufficient time has lapsed (2-6 hours) to assess for the response.

- Teach the patient measures to safely take the drug, including:
  - Be aware that thinking, problem-solving skills, and memory may be impacted by the drug
  - Do not drive or operate heavy machinery while using marijuana
  - Use caution when standing up and walking as your balance may be affected
  - Report any heart palpitations or severe headaches to your physician
  - Be aware that your immune system may be impacted, making infections more common
  - Ask your healthcare provider about any possible interactions between your current medications and marijuana

- Teach the patient signs of addiction to marijuana, including:
  - Needing more of the drug to get the same effect
  - Continuing to use the drug despite family or work relationships being negatively affected
  - Neglecting personal appearance and responsibilities
  - Spending an increasing amount of time using the drug