Experience

- Masters Degree in Addiction Studies from Hazelden School of Addiction Studies
- Licensed Alcohol and Drug Counselor in Minnesota and Nevada
- Preferred Provider for the State of Nevada Nurses Association
- Residential, intensive outpatient, outpatient counseling experience at Hazelden Betty Ford Foundation
- Past LADC for the University of Nevada, Reno
- Continuing education instructor, UNR School of Medicine
- State certified intern supervisor
- Currently Substance Use Counselor, Three Nations Tribal Health Center
Overview and Objectives

- Review the active components of marijuana
- Describe the delivery systems for marijuana
- Discuss marijuana data
What is Marijuana?

“Marijuana” defined. NRS 453.096

1. **“Marijuana” means:**
   (a) All parts of any plant of the genus *Cannabis*, whether growing or not;
   (b) The seeds thereof;
   (c) The resin extracted from any part of the plant; and
   (d) Every compound, manufacture, salt, derivative, mixture or preparation of the plant, its seeds or resin.

- *Cannabis sativa* contains over 480 different compounds.
- 66 are termed Cannabinoids
Cannabinoids are separated into the following subclasses:

- Cannabigerols (CBG)
- Cannabichromenenes (CBC)
- **Cannabidiol (CBD)**
- **Tetrahydrocannabinol (THC)**
- Cannabinol (CBN)
- Cannabinodiol (CBDL)
- Cannabicyclol (CBL)
- Cannabielsoin (CBE)
- Cannabitriol (CBT)
Marijuana as Medicine

- **THC** – marijuana’s main psychoactive ingredient
  - increases appetite and reduces nausea, may also reduce pain
- **CBD** – reduces negative effects of THC
  - has anti-inflammatory, anti-convulsant, anti-psychotic, and analgesic properties
Most abundant of the cannabinoids

- Thought to make up about 40% of the plant resin extract.
- Thought to have anti-anxiety effects, possibly counteracting the psychoactive effects of THC
- Being researched for MS, Fibromyalgia, Epilepsy and providing relief for chronic pain due to muscle spasticity, convulsions and inflammation.

Cannabidiol (CBD)
THC and CBD

- THC is an partial agonist to the CB receptor
- CBD is an antagonist to the CB receptor
- Even amounts of THC and CBD nullify the intoxicating effects.
- CBD is bred out of today’s marijuana to intensify the intoxicating effects.
Delta 9 Tetrahydrocannabinol (THC)

http://www.drugabuse.gov/publications/drugfacts/marijuana
Cannabinoid receptors

Located throughout the brain and entire body, possibly more numerous than any other receptor system.

These receptors control appetite regulation, peripheral energy metabolism, pain and inflammation, GI motility/secretion, neuro-inflammation.

- CB1, found in the nervous system, connective tissues, gonads, glands and organs
- CB2, found in the immune system
Cannabinoid Receptors
Forms of delivery

- Smoked in cigarette form or in pipes
- E-cigs
- Vaporized
- Added to food
- Brewed in tea or other beverages
Smoking

• 480 compounds in the marijuana plant becomes over 2000 compounds when combusted.

• Smoking delivers toxins as well as potentially therapeutic compounds.

• Example of different experiences with the same exposure to the same marijuana substance and the same amount.
<table>
<thead>
<tr>
<th>Brain Structure</th>
<th>Regulates</th>
<th>THC Effect on User</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amygdala</td>
<td>emotions, fear, anxiety</td>
<td>panic/paranoia</td>
</tr>
<tr>
<td>Basal Ganglia</td>
<td>planning/starting a movement</td>
<td>slowed reaction time</td>
</tr>
<tr>
<td>Brain Stem</td>
<td>information between brain and spinal column</td>
<td>antinausea effects</td>
</tr>
<tr>
<td>Cerebellum</td>
<td>motor coordination, balance</td>
<td>impaired coordination</td>
</tr>
<tr>
<td>Hippocampus</td>
<td>learning new information</td>
<td>impaired memory</td>
</tr>
<tr>
<td>Hypothalamus</td>
<td>eating, sexual behavior</td>
<td>increased appetite</td>
</tr>
<tr>
<td>Neocortex</td>
<td>complex thinking, feeling, and movement</td>
<td>altered thinking, judgment, and sensation</td>
</tr>
<tr>
<td>Nucleus Accumbens</td>
<td>motivation and reward</td>
<td>euphoria (feeling good)</td>
</tr>
<tr>
<td>Spinal Cord</td>
<td>transmission of information between body and brain</td>
<td>altered pain sensitivity</td>
</tr>
</tbody>
</table>

The brain structures illustrated above all contain high numbers of CB receptors.
Aspirin

• Go into my orchard chop down a willow tree, grind it up and start smoking.

• We isolate the compound for aspirin from the bark of the willow tree.

• I need to sell my willow trees.
Smoke is harmful to lung health. Whether from burning wood, tobacco or marijuana, toxins and carcinogens are released from the combustion of materials. Smoke from marijuana combustion has been shown to contain many of the same toxins, irritants and carcinogens as tobacco smoke.\textsuperscript{4-7}

Beyond just what's in the smoke alone, marijuana is typically smoked differently than tobacco. Marijuana smokers tend to \textbf{inhale more deeply} and \textbf{hold their breath longer} than cigarette smokers, which leads to a greater exposure per breath to tar.\textsuperscript{8}
Smoking marijuana clearly damages the human lung, and regular use leads to chronic bronchitis and can cause an immune-compromised person to be more susceptible to lung infections. No one should be exposed to secondhand marijuana smoke. Due to the risks it poses to lung health, the American Lung Association strongly cautions the public against smoking marijuana as well as tobacco products. More research is needed into the effects of marijuana on health, especially lung health.
Medical marijuana should be subjected to the same Food and Drug Administration standards of efficacy and safety as any pharmaceutical agent promoted for purposes of alleviating the symptoms of disease.

The American Lung Association supports research into the health effects of marijuana use, including the risks and any potential benefits of medical marijuana use.
American Lung Assoc. references

Medical Marijuana Card

• Insulting joke on the medical industry
• What does a doctor need to write a prescription for amoxicillin? History, physical, review systems, # of mg’s - amount, # of refills, dosing, diagnosis, risk assessment. T
• Take 2 joints a day and inhale like this and take this strain and hope it’s been fertilized without too many toxic chemicals.
Registry Identification Cards

NRS 453A.210

1. The Division shall establish and maintain a program for the issuance of registry identification cards to persons who meet the requirements of this section.

2. Except as otherwise provided in subsections 3 and 5 and NRS 453A.225, the Division or its designee shall issue a registry identification card to a person who is a resident of this State and who submits an application on a form prescribed by the Division accompanied by the following:

(a) Valid, written documentation from the person’s attending physician stating that:

   (1) The person has been diagnosed with a chronic or debilitating medical condition;

   (2) The medical use of marijuana may mitigate the symptoms or effects of that condition; and

   (3) The attending physician has explained the possible risks and benefits of the medical use of marijuana;
Nevada Law - Approved Conditions for Medical Marijuana

- AIDS
- Cancer
- Glaucoma
- PTSD
- Cachexia
- Persistent muscle spasms
- Seizures
- Severe pain
- Additional conditions subject to approval by the Division of Public and Behavioral Health
Before recommending marijuana to a patient, a physician should ask him/herself the following:

- Is there documentation that the patient has **had failure of all other conventional medications** to treat his or her ailment? Have you counseled the patient (documented by the patient's signed informed consent) regarding the medical risks of the use of marijuana—at a minimum to include infection, pulmonary complications, suppression of immunity, impairment of driving skills, and habituation?

- Has the **patient misused** marijuana or other psychoactive and addictive drugs?

- Do you periodically provide **drug testing** of the patient who has been recommended marijuana, and have patients been excluded from being recommended marijuana who are found to be using other illicit drugs? Who does the drug testing and by what means?

- Have you carefully reviewed exactly **which patients** should be allowed to use this drug medicinally and for **how long**?

West J Med. 2001 Nov; 175(5): 305–306
Before recommending marijuana to a patient, a physician should ask him/herself the following (continued):

- Do you carefully examine and **consistently follow up with patients** who use smoked marijuana as a medical treatment, including pulmonary function testing, evaluation of immune status, and the presence of any superadded infection?

- Have you **exercised due care** in assuring the standardization of the tetrahydrocannabinol potency content of the marijuana to be considered for medicinal use and whether it is free of microbial contaminants?

- Because marijuana is a federally controlled substance, **has a system been established in the state to track all patients** and their source of marijuana, as with other controlled substances? Are you complying with such requirements?

- **Have you shown knowledge, training, or certification in addiction medicine?** Do you have demonstrable knowledge of the physiologic effects of marijuana, its side effects, and its interaction with other drugs before prescribing it?

West J Med. 2001 Nov; 175(5): 305–306
Edibles

• Very potent with longer lasting effects
• 10mg THC is “beginner” dose - candy bars have 100mg of THC
• Use will feel the effects between 20-40 minutes after ingestion
• Adds 11 Hydroxy to delta 9, THC - detected in screening tools up to 5 weeks after ingestion
• User is unable to stop metabolism if he gets too high
Edibles Currently Being Sold in the U.S.
Dabs

- Contain 75% to 90% THC
- Looks like honey or ear wax
- Explosions and burns separating THC from other compounds to increase potency of butane hash oil (dabs)
- Dabs behaviors resemble meth when entering the emergency room. Kicking screaming sock over face – Zombie killer eating persons face. = under the influence of mj
Dabs made from hash oil (75-90% THC)
A vape pen for only $54.99

Kit includes: Battery unit, metal flower tank with metal screen chamber, rubber mouthpiece with ceramic filter, glass oil tank with plastic mouthpiece, glass wax tank with rubber lid, metal sheath, plastic mouthpiece, USB charger, small metal dabber, cleaning brush, user guide

Options: Pro (flowers only, glass screens); 3-in-1 (flowers, wax, liquid)

Use with: Flowers, wax, liquid

Distinguishing characteristics: N/A

Pros: Good flower smoke; sturdy, feels like it would be difficult to break

Cons: A bit too big, bulky; stopper inside is a pain to get out of chamber; have to hold down for a second or two before you can get a hit

Rating: 13.25

Price: $54.99 (Pro-$79.99, 3-in-1-$139.99)

Website: vaporitevapes.com
What happened in Colorado when medical marijuana dispensaries were created in 2009?

- **2007-2008** – early medical marijuana era
  - 1,000 – 4,800 cardholders and zero dispensaries

- **2009-2012** – medical marijuana commercialization
  - 108,000 cardholders and 532 licensed dispensaries

- **2013** – present: medical marijuana commercialization and recreational marijuana

- Today there are more marijuana shops than McDonalds, 7-11 stores and Starbucks in Colorado.
FDA Approved Marijuana

- **Marinol** (dronabinol) and **Cesamet** (nabilone)
  - synthetic delta-9-tetrahydrocannabinol (delta-9-THC)
- **Indicated for the treatment of:**
  1. anorexia associated with weight loss in patients with AIDS
  2. nausea and vomiting associated with cancer chemotherapy in patients who have failed to respond adequately to conventional antiemetic treatments.
Pending FDA Approval

• **Sativex** – peppermint flavored mouth spray being used in Europe, stage 3 trials in U.S.
  - Medicinal cannabis extract indicated for the relief of multiple sclerosis (MS) symptoms and the treatment of severe neuropathic-related cancer pain.

• **Epidiolex**, a CBD-based drug recently created to treat certain forms of childhood epilepsy. It has not gone through clinical trials yet in the U.S.
Things to consider

• What is the dose, what is the strain and how does this specific strain impact the body?

• People are growing and harvesting their own marijuana.

• FDA oversight makes it possible for the recall of harmful drugs or contaminated batches and the dissemination of new information about drug safety.

• No other prescription medication is smoked. Concerns remain about the long-term risks of respiratory problems associated with smoking marijuana.
FDA, AMA, ASAM, SAMSHA, NIDA say:

- Separate the compounds
- Make the results reproducible
- Research in controlled safe studies to determine benefit to risk
- Be standardized by identity, purity, potency and quality
- Provide directions for use
- Include safe and reliable delivery system
Abuse, Addiction and Treatment

“Clearly, some but not all individuals are at risk of psychosis with exposure to marijuana, but it is not possible to identify at-risk individuals.”

Jama.jamanetwork.com May 20th 2014
Marijuana Abuse and Addiction

• “Marijuana dependence is the most common type of drug dependence in many parts of the world (including the U.S., Canada, and Australia) after tobacco and alcohol. It is estimated that 9% of people who try marijuana become dependent”. Anthony, J., Warner, L., & Kessler, R. (1994). Comparative epidemiology of dependence on tobacco, alcohol, controlled substance and inhalants: Basic findings from the National Comorbidity Survey. *Experimental and Clinical Psychopharmacology, 2*(3), 244–268.

• “Those who begin using the drug in their teens have approximately a one in six risk of developing marijuana dependence”. Wagner, F.A. & Anthony, J.C. (2002). From first drug use to drug dependence; developmental periods of risk for dependence upon marijuana, cocaine, and alcohol. *Neuropsychopharmacology, 26*, 479-488.
Why is marijuana now the largest reason for treatment in adolescents?
Daily Marijuana Use vs. Perceived Risk of Regular Marijuana Use among 12th Graders, 1975-2013

Source: University of Michigan, 2013 Monitoring the Future Study
New Zealand Study

- NIDA: “Marijuana’s lasting effects on the Brain”
- 2000 people – 25 years, age 13 yrs. to 38 yrs.
- Marijuana smokers had 8 IQ points less than nonsmoking base group
- Average IQ 100 points.
### Nevada Treatment Episode Data Set - Substance Abuse and Mental Health Services Administration (SAMHSA) - 2012

<table>
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<tr>
<th>STATE: NEVADA</th>
<th>Total No.</th>
<th>Alcohol</th>
<th>Marijuana</th>
<th>Heroin</th>
<th>Other opiates</th>
<th>Meth</th>
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<td>1,735</td>
<td>931</td>
<td>616</td>
<td>2,288</td>
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<td>18.8</td>
<td>10.1</td>
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#### SEX

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<tr>
<td>Male</td>
<td>62.3</td>
<td>69.9</td>
<td>71.6</td>
<td>61.5</td>
<td>50.6</td>
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<tr>
<td>Female</td>
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<td>30.1</td>
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#### AGE

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<tr>
<td>12-17 years</td>
<td>11.7</td>
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<td>42.9</td>
<td>4.1</td>
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<td>18-20 years</td>
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<td>3</td>
<td>13.1</td>
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<td>21-25 years</td>
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<td>8.7</td>
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<td>26-30 years</td>
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<td>31-35 years</td>
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<td>51-55 years</td>
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<td>56-60 years</td>
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<td>61-65 years</td>
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<td>% 100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Experience counts: Colorado didn’t have anyone to compare to. Nevada does. Go to RMHIDTA.ORG – Program out of the President’s office, funded by federal funds, doesn’t take a stance politically. You’ll see that the trends show what common sense tells us.
DSM-5 pg. 509  Cannabis Use Disorder, 11 Criteria

1. Cannabis is often taken in larger amounts or over a longer period than was intended.

2. There is a persistent desire or unsuccessful efforts to cut down or control cannabis use.

3. A great deal of time is spent in activities necessary to obtain cannabis, use cannabis or recover from its effects.

4. Craving, or a strong desire or urge to use cannabis.

5. Recurrent cannabis use resulting in a failure to fulfill major role obligations at work, school, or home.
Continued cannabis use despite having a persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of cannabis.

Important social, occupational, or recreational activities are given up or reduced because of cannabis use.

Recurrent cannabis use in situations in which it is physically hazardous.

Cannabis use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by cannabis.

Needing more of the substance to get the effect you want (tolerance)

Development of withdrawal symptoms, which can be relieved by taking more of the substance.
Treatment Works!

- Cognitive Behavioral Therapy
- Solution Focused
- Motivational Interviewing
- Spiritual, emotional, mental, physical healing
- Takes time
Contact Information

Paul Snyder MA, LADC

Paulsnyder26@yahoo.com
775-622-2240

Treatment Works!