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# Medical Cannabis Program

## Cannabis *N*<sub>ugs</sub> *O*<sub>f</sub> *W*<sub>isdom</sub>

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# Disclaimer

- The opinions shared during this meeting do not necessarily reflect the position of the Medical Cannabis Program.
- The Medical Cannabis Program does not endorse any specific product, producer, or vendor.

# Review telemedicine

- Audio and Visual
  - Phone call?
  - Texting?
- HIPAA Complaint Platform
  - Facetime?
  - Skype? (free)
  - Tik Tok?
  - WhatsApp?
  - Facebook Messenger (video chat)?

# What age is considered elderly?

- People over 50 can join the AARP.
- The Older Americans Act (OAA) provides services to people as young as 55.<sup>1</sup>
- When defining “Vulnerable Older Adults” the CDC uses a cutoff of 60.<sup>2</sup>
- AMC provides movie ticket discounts to a person age “60+”
- Traditionally elderly are considered those persons aged 65 or older.<sup>3</sup>

# Are there a lot of elderly?<sup>4</sup>

- Globally, the pace of population aging is much faster than in the past.
  - In 2020, the number of people aged 60 years and older outnumbered children younger than 5 years.
  - World Health Organization (WHO) predicts that between 2015 and 2050, the proportion of the world's population over 60 years of age will double from 12% to 22%.
  - Between 2020 and 2050, the number of persons aged 80 years or older is expected to triple and reach 426 million.

# Are there a lot of elderly?

- In the United States, we see similar trends.
  - By 2030, about 20% of the US population, (72 million people) will be over the age of 65 years.<sup>5</sup>
  - And by 2035, people aged 65 and over are expected to outnumber children under the age of 18.<sup>6</sup>

# Why is this segment growing?<sup>7</sup>

- Pharmacotherapy has allowed people to live longer lives, but...
- Older individuals often require complex medication regimens just to manage their chronic health conditions, yet...
- Due to their advanced age, they are at-risk of age-associated physiological, functional, and cognitive changes that increase the risk of adverse drug effects, all while...
- They continue to develop more chronic conditions requiring more complex pharmacotherapy.

# What can help?





# Why?

- Alleviate the symptoms of chronic conditions
- Reduce medication burden
- Safer than other options
- Cheaper than other options

# Why do older patients consider using medical cannabis?<sup>9</sup>

- Symptoms may not be adequately controlled by standard drug treatments.
  - Suboptimal effects
  - Adverse effects
- Cannabis is a plant product and is natural and less harmful than medications.
  - Safe for kids
  - Appeal of an elixir over a pill
- Advised by a family member to try it.
- Coerced into obtaining cannabis that is then accessed by someone else.
  - Unlikely given recreational access
- Having a medical cannabis card legitimizes my use.

# Do the elderly need additional education?

- Researchers conducted a trend analysis of cannabis-related ED visits from all acute care hospitals in California and found that while people  $\geq 65$  up were involved in only 366 cannabis-related ER visits in 2005, that number skyrocketed to 12,167 in 2019. The relative increase was **1,808%**.<sup>9</sup>
- The potency of cannabis today far exceeds what many older patients may have been used to.

# Do the elderly need additional attention?<sup>10</sup>

- To date, the majority of cannabinoid research has focused upon a healthy younger population.
- Advancing age is associated with the accumulation of medical comorbidities.
- Older persons have already become an important group of cannabis users.
- **Greater awareness** amongst providers of the potential indications and hazards of cannabinoids in the older patient **is therefore imperative.**

# Unique Challenges to Cannabis Use Created by the Aging Process

- Polypharmacy
- Pharmacokinetic Changes
- Nervous System Impairment
  - Psychomotor
  - Cognitive
  - Mental Health
- Cardiovascular

# Polypharmacy

- Taking more medications presents a greater risk of drug interactions.
- Especially drugs that influence the hepatic CYP family of enzymes.

# Clinically Relevant Interactions<sup>11</sup>

Clinical Relevance of Drug interactions with Cannabis <sup>7</sup>		
Drug	Mechanism	Effects
<b>Level 1 Interaction: Very High Risk</b>		
Warfarin	CYP2C9 Inhibition	Increased INR with concomitant use of CBD resulting in GI bleeding. Monitor INR closely for warfarin adjustments. Avoid combination if possible.
<b>Level 2 Interaction: High Risk</b>		
Buprenorphine	CYP3A4 Inhibition	Increased concentrations of buprenorphine. Avoid combination if possible or adjust buprenorphine doses. <sup>1</sup>
Tacrolimus	CYP3A4 Inhibition	Increased tacrolimus concentrations. Avoid combination if possible or adjust tacrolimus doses. <sup>1</sup>
<b>Level 3 Interaction: Medium Risk</b>		
Clozapine	CYP3A4 and 2C19 Induction	Decreased clozapine concentrations. Consider dose adjustment. <sup>1</sup>
Methadone	CYP3A4 and 2C19 Inhibition	Increased methadone levels resulting in increased somnolence. Consider dose adjustment. <sup>1</sup>
Clobazam	CYP2C19 Inhibition	Increased clobazam concentrations. Consider dose adjustment. <sup>1</sup>
Chlorpromazine	Possible CYP1A2 Induction	Decreased chlorpromazine concentrations. Consider dose adjustment. <sup>1</sup>
Hexobarbital	Possible CYP3A4 Inhibition	Increased hexobarbital concentrations. Consider dose adjustment. <sup>1</sup>
Ketoconazole	CYP3A4 Inhibition	Increased concentrations of THC/CBD
Rifampicin	CYP3A4 Induction	Decreased concentrations of THC/CBD
Stiripentol	CYP2C19 Induction	Increased concentrations of stiripentol. Consider dose adjustment. <sup>1</sup>
Theophylline	CYP1A2 Induction	Decreased theophylline concentration. Consider dose adjustment. <sup>1</sup>
Valproate	Possible UGT1A9 and UGTB7 Inhibition	Increased LFTs. Assess liver function before taking in combination.
<b>Level 5 Interaction: Co-administration with CBD does not lead to significant changes in drug levels (rufinamide, topiramate, zonisamide, nelfinavir)</b>		

Levels of clinical relevance of drug interactions were determined according to the combination of severity and probability of occurrence.

<sup>1</sup>Monitor plasma levels if possible.

# Pharmacokinetic Changes<sup>8</sup>

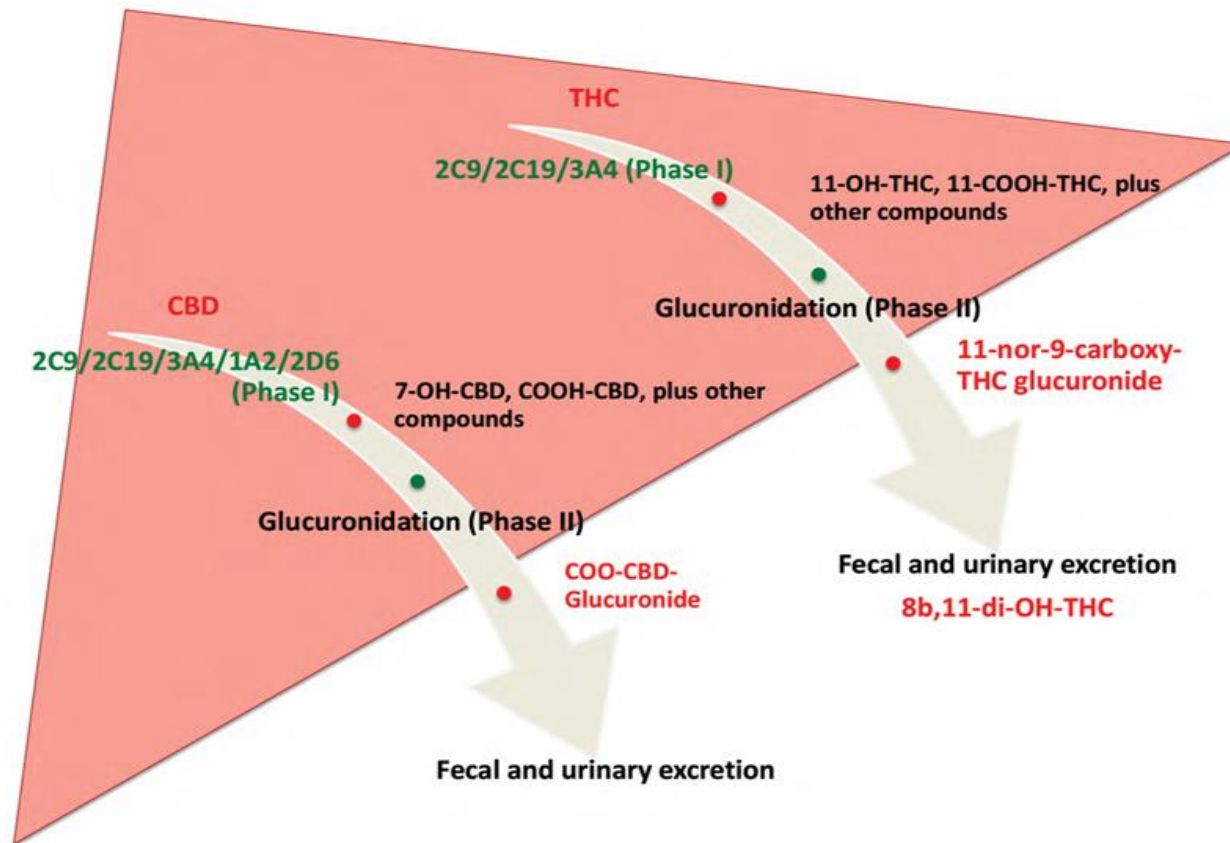
- **Decreased hepatic and renal function** in older adults results in reduced clearance of cannabis leading to an *increase in the elimination half-life*.
- **Increased relative body fat** in the elderly also *increases the volume of distribution* for lipid-soluble molecules like CBD and THC.



# Pharmacology<sup>12</sup>

- Two phases of metabolism in the liver
  - Phase 1
    - Cytochrome P450 system
      - THC is metabolized in the liver by cytochrome P450 enzymes (mainly by CYP2C9 and to a lesser extent by CYP3A4). These enzymes convert THC into a metabolite called 11-hydroxy-THC, which is also psychoactive and can have stronger effects than THC itself.
      - CBD also metabolized by CYP2C9 and CYP3A4
  - Phase 2
    - Glucuronidation of phase 1 metabolites

# Metabolism of THC and CBD<sup>13</sup>



# Psychomotor

- Impairment in gait and stability predisposes older patients to an increased risk of falls and injuries.
- Impaired vision and reduced hearing make it difficult to interact with environment.
- Driving skills also impacted by age.
- Reading labels is more difficult.

# Cognitive<sup>14</sup>

- Impairment in short-term memory and emotional processing may increase as a result of cannabis use.
  - may be particularly harmful in patients with pre-existing cognitive impairment.

# Mental Health<sup>15</sup>

- Over 20 percent of adults aged 60 and over suffer from a mental or neurological disorder.
- Higher rates of depression - additional stressors
- Increased risk of psychotic episodes and suicidality (more pertinent to young patients).
- Higher substance use disorder

# Cardiovascular<sup>16</sup>

- Increased risk for myocardial infarction, sudden cardiac death, arrhythmia, stroke and transient ischemic attacks
  - Increases heart rate
  - Increases blood pressure
  - Increases myocardial oxygen demand
- Cannabis is becoming increasingly potent, and smoking cannabis carries many cardiovascular health hazards as smoking tobacco.

# How should we approach the elderly patient?<sup>8</sup>

1. Evaluate the indication
2. Explore available treatment modalities
3. Consider possible adverse effects
4. Assess risk-benefit
5. Treat/Recommend
6. Re-evaluate\*\*\*

# Evaluate the indication - *benefit*

- Chronic Pain – *relief of pain symptoms*
- Insomnia – *improved sleep patterns*
- Cancer – *reduced symptoms*
- Anorexia – *improved appetite*
- Anxiety Disorder – *reduction of stress/anxiety*
- Parkinson's Disease – *eases symptoms*
- Alzheimer's Disease – *eases symptoms*
- Hospice Care – *reduction in pain/improved appetite*
- Peripheral Neuropathy – *reduction in pain*



# Explore available treatment modalities

- Have other treatment modalities been explored?
  - Pharmaceutical
  - Physical
  - Interventional
  - Psychological

# Consider possible adverse effects

- Cardiovascular risk
- Risk of falls
- Cognitive impairment
- Driving
- Psychiatric comorbidities, risk of suicidality
- Drug-drug interactions

# Assess risk-benefit

- How does the potential improvement in patient's quality of life measure against potential risks?
- Have they already tried cannabis and what was the result?

# Treat/Recommend

- Begin with a treatment trial.
- Choose an appropriate product.
- Start with lowest available dosing.
  - Once daily
- Titrate slowly
  - Dose size
  - Number of doses.
- Journal amount and type of product used.
- Involve family in monitoring side effects and assure safety.

# Re-evaluate

- Assess efficacy and adverse effects.
- Evaluate the need for continuation of treatment.
- Consider dose adjustment.
- Change method of delivery.
- Review how to read a label.
- Remind patients they must disclose cannabis use if planning surgery.

# Summary<sup>17</sup>

- There are no absolute contraindications for cannabis use in the geriatric population, but certain groups warrant caution:
  - Severe cardiovascular disease
    - Heart failure or recent M.I.
  - Psychotic comorbidities
  - History of addictions
  - Gait instability and nervous system impairment
  - Polypharmacy
  - Reduced drug elimination mechanisms
    - Hepatic or renal disease

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# Any questions?



# For More Information

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**THANK YOU!!**