Medical Cannabis Program

Cannabis Nugs Of Wisdom

Gary J. French, MD
Medical Director

Elizabeth Bisio, MHP, CHES
Health Educator
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.
Objectives

• Introduce MCP Team
• Review items from patient portal
• Cannabis pharmacokinetics
• Discuss Cannabis use in the setting of HCV
Portal Proficiency

- Where to find instructions
- Verifying the email
- Distinct emails
- Spelling the email
- Caregiver question
- The invitation box
- Red banner
- Patient email invite
Instuction Sets

NEW MEXICO
Department of Health
Medical Cannabis Division

Welcome
All potential patients and caregivers are encouraged to thoroughly review the information on the Medical Cannabis Division's website: https://www.nmhealth.org/about/mcp/wcsa/

Before you start and application, please see these instructions for all the necessary information and documents you will need.

- Instructions
- Patient Enrollment
- Medical Provider Instructions
- FAQs
- Rules and Regulations

Announcements
For more information and details on announcements, please visit: doh.mcp.nm.gov

Patient Instructions  Minor (Under 18) Patient Instructions  Caregiver Instructions  Medical Provider Instructions  FAQs  Rules and Regulations

Create an Account  Login To Your Account

Investing for tomorrow, delivering today.
1190 S. St. Francis Drive • Santa Fe, NM 87505 • Phone: 505-827-2613 • Fax: 505-827-2530 • nmhealth.org
Verify your registered email

From: no-reply@patienttracking.org
To: Patient_MCP_DOH
Subject: [EXTERNAL] Create an Account mcp-patient-tracking.nmhealth.org
Date: Wednesday, November 16, 2022 2:19:04 PM

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Hi MCP,

You are now registered in the New Mexico Medical Cannabis Online Portal.

To confirm your registration, please click this link:
https://mcp-patient-tracking.nmhealth.org/?action=registration&confirmation=eyIwI49TVr5KvZvJs0XpQM0HeP9Y19ET0UNsMPr2YiVKOs2OEpqMMNSikZ912

By confirming this email, you are accepting communications from the New Mexico Department of Health Medical Cannabis Program via email and understand and accept the potential risk. If you choose not to have communications via email, please notify the New Mexico Department of Health Medical Cannabis Program. Your email address will not be given to any other party without your prior authorization.

If you have any questions or have received this notification in error, please contact the New Mexico Department of Health Medical Cannabis Program at 505-827-2321 or email at Medical.Cannabis@state.nm.us.

Thank you for using the New Mexico Department of Health Medical Cannabis Program Online Portal.
### Provider vs Personal

#### Medical Provider Information

<table>
<thead>
<tr>
<th>Information</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name</td>
<td>Gary</td>
</tr>
<tr>
<td>Last Name</td>
<td>French</td>
</tr>
<tr>
<td>Phone</td>
<td>(505) 827-8251</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:nmdohmcp@gmail.com">nmdohmcp@gmail.com</a></td>
</tr>
<tr>
<td>NM Controlled Substance License #</td>
<td>CS0123456</td>
</tr>
</tbody>
</table>

#### Office Mailing Address

<table>
<thead>
<tr>
<th>Address</th>
<th>1474 Rodeo Rd, Suite 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZIP Code</td>
<td>87505</td>
</tr>
<tr>
<td>City</td>
<td>Santa Fe</td>
</tr>
<tr>
<td>State</td>
<td>NM</td>
</tr>
<tr>
<td>County</td>
<td>Santa Fe</td>
</tr>
</tbody>
</table>
Email and Dropdowns
Caregiver question
Sign, click, save
False alarm
Patient invite email

From: nocreply@biotrackh.com
To: [REDACTED] (EXTERNAL); State of New Mexico Medical Cannabis Program Invitation
Subject: [EXTERNAL] State of New Mexico Medical Cannabis Program Invitation
Date: Wednesday, November 16, 2022 2:12:12 PM

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Hi Mcp Patient,

This email is to notify you that your medical provider has completed their portion of your application for the participation in the New Mexico Department of Health Medical Cannabis Program using our Online Portal.

If you have not registered in the system, please login and complete a registration. Please go to: https://mcp-patient-tracking.nmhealth.org/ to register.

You must complete your portion of the application and include an image of your New Mexico State ID or Driver’s License. Once complete, you can submit the application for review. Please know, it can take the New Mexico Department of Health Medical Cannabis Program up to 30 days to process applications from the day of receipt of a completed application.

DO NOT DELETE THIS EMAIL. After you register, please come back to this email and click on the following link: https://mcp-patient-tracking.nmhealth.org/?action=applications&type=patient&invitation=e9IdCTL_1668633124878274862

If you have any questions or have received this notification in error, please contact the New Mexico Department of Health Medical Cannabis Program at 505-827-2321 or email at Medical.Cannabis@state.nm.us

Thank you for using the New Mexico Department of Health Medical Cannabis Program Online Portal.
Any questions?
Hepatitis C

- Added to the list of qualifying conditions in 2009
- Currently 116 patients list Hepatitis C as their primary qualifying condition.
- Does not treat Hepatitis C, but helps to manage many symptoms.
Pharmacology ¹

• 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.
  • Phase 2
    • Glucuronidation of phase 1 metabolites
Metabolism of THC and CBD \(^2\)

[Diagram showing the metabolism of THC and CBD, including phases I and II, and various metabolites such as 2C9/2C19/3A4, 11-OH-THC, 11-COOH-THC, 7-OH-CBD, COOH-CBD, 11-nor-9-carboxy-THC glucuronide, and 8b,11-di-OH-THC.]
## Cannabis and CYP450 system

<table>
<thead>
<tr>
<th>CYP450 Isoenzymes</th>
<th>Inducers (lowering cannabis effect)</th>
<th>Inhibitors (increasing cannabis effect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C9</td>
<td>Rifampicin</td>
<td>Ketoconazole, Fluconazole, Amiodarone, Cimetidine</td>
</tr>
<tr>
<td>2C19</td>
<td>Artemisinin</td>
<td>Fluvoxamine, Fluoxetine, Omeprazole, Ticlopidine, Cimetidine, Ketoconazole</td>
</tr>
<tr>
<td>3A4</td>
<td>Azole antifungals, Macrolide antimicrobials, Selective serotonin re-uptake inhibitors (SSRIs), Calcium channel blockers, Protease inhibitors, Grapefruit juice, Ciprofloxacin, Cimetidine, Propofol</td>
<td>Rifampicin, Rifabutin, Carbamazepine, Phenytoin, Phenobarbital</td>
</tr>
</tbody>
</table>
Potential Drug interactions

- Concomitant use of certain medications may increase or decrease the concentration of some cannabinoids and alter their effects.
- CYP3A4 inhibitors *increase* THC concentrations
- CYP3A4 inducers *decrease* THC concentrations
- Rifampin, a strong CYP3A4 inducer, has been reported to reduce THC levels by 20% to 40%
- St John’s Wort is also a CYP3A4 inducer and reduces THC and CBD levels
Drug Interactions (cont.)

- Cannabis use appears to decrease atazanavir trough concentrations, with 50% of users in one study having trough concentrations below the therapeutic range (No impact on CD4 or Viral Load).

- Ritonavir is a modest inducer of CYP2C9, but a strong inhibitor of CYP3A4. The overall effect could be a potential modest increase in THC.

- Both are Protease Inhibitors*
Positives

• Lower total health costs
• Improved HCV virologic outcome
• Does not appear to accelerate progression of liver disease
• Reduced risk of hepatic steatosis
• Reduced hepatic fibrosis
• Did not alter histology or treatment outcomes
Lower total health costs

• Cannabis might be directly toxic to hepatitis virus in vivo, as is recently shown in vitro.

• Cannabis users might make HCV patients feel less nauseous and more motivated to take their other antiviral medications and another medical regimen.

• Cannabis might be associated with decreased hepatic cirrhosis and complications of cirrhosis, thereby resulting in the lower cost and better discharge disposition outcomes among cannabis users.
Improved HCV virologic outcome

- Cannabis use may offer symptomatic and virological benefit to some patient undergoing HCV treatment by helping them maintain adherence to the challenging medical regimen.
Does not accelerate progression of liver disease 7

• In this prospective analysis we found no evidence for an association between cannabis smoking and significant liver fibrosis progression in HIV/HCV coinfection.
Reduced risk of hepatic steatosis

- Given the persistence of metabolic risk factors after HCV eradication, cannabis-based therapies need to be evaluated both as preventive and therapeutic tools in patients living with or at risk of liver steatosis, possibly in combination with existing conventional approaches.
Reduced Hepatic Fibrosis

• A 2019 review of nine studies involving nearly 6 million subjects concluded, “Cannabis use [does] not increase the prevalence or progression of hepatic fibrosis in HCV and HCV-HIV-coinfected patients. On the contrary, we noted a reduction in the prevalence of non-alcoholic fatty liver disease in cannabis users.”
Use did not alter histology or treatment outcomes $^{10}$

- Although hard HCV antiviral treatment outcomes were not influenced by cannabis use, it remains plausible that cannabis alleviates on-treatment side effects and increases appetite, thereby reducing patient suffering while on interferon-based treatment.
Negatives

• Worsen fibrosis and steatosis
• Immunosuppression resulting in suppression of anti-viral immunity
• Increased risk of viral infections
• Worse hospital outcomes
• Worsen side effects of medications
Worsen fibrosis and steatosis

- A deleterious role of daily use of recreational drugs, in particularly cannabis, has been shown to demonstrate clearly a rapid progression of fibrosis and steatosis, leading to a major severity in patients with chronic hepatitis C.
Suppression of anti-viral immunity ¹²

• Cannabis use can suppress the immune system, which may interfere with the effectiveness of interferon-based therapies.

• Increased endocannabinoid levels during HCV infection might suppress inflammatory cytokines production, thereby weakening the immune response towards HCV infection.
Increase risk of viral infection

- Cannabis use may be associated with adverse effects on immune function and, thereby, increase the risk of acquiring or transmitting infections such as HIV and HCV.
Worsen hospital outcomes $^{14}$

- Cannabis Use Disorder is significantly associated with 122% increased likelihood for hepatic encephalopathy that may worsen overall hospitalization outcomes in CHC patients.
Worsen side effects ¹⁵

- Cannabis use may increase the risk of side effects associated with interferon therapy, such as depression, anxiety, and fatigue.
Final words

• Overall, the current evidence on the effects of cannabis on the liver is mixed and more research is needed to fully understand the relationship between cannabis use and liver function.

• Likely safe to use during HCV treatment with newer antiretrovirals (Protease Inhibitors?) – limited time of exposure.
• Caution with interferon based regimens.
• Excessive alcohol consumption is a well-established cause of liver damage and should be avoided.
• Smoking cannabis can cause respiratory problems, such as bronchitis and pneumonia, which can be especially harmful for individuals with chronic hepatitis C.
References


Any questions?
For More Information

• Website: www.nmhealth.org/go/mcp

• Phone: (505) 827-2321

• Email: medical.cannabis@doh.nm.gov

THANK YOU!!