

# THC Intoxication

Goodbye Snoopy, Hello Snoop Dogg!

Alice Murtas, BS, CVT, VTS (ECC)



The recreational use of cannabis is legal in 18 states, the District of Columbia, and three US territories.

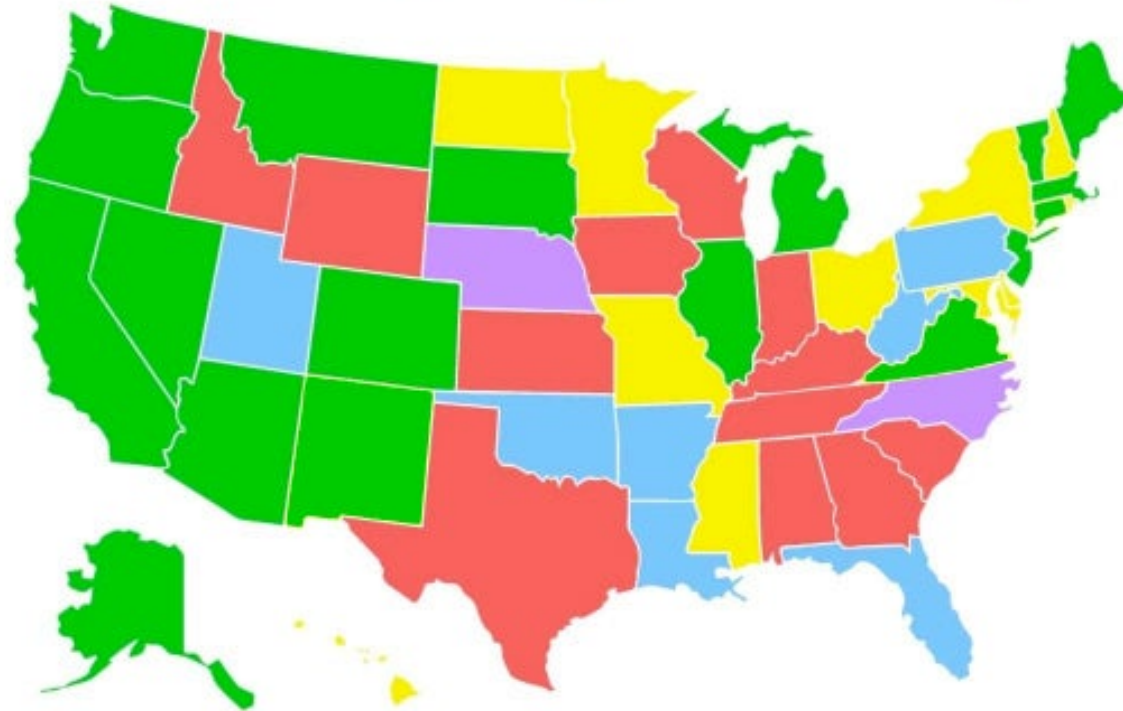
Medical use of marijuana is legal in 35 states.



# Why THC Intoxication Has Become so Common

## Marijuana laws in the US

Fully illegal   Decriminalized   Medical   Medical and decriminalized   Legalized

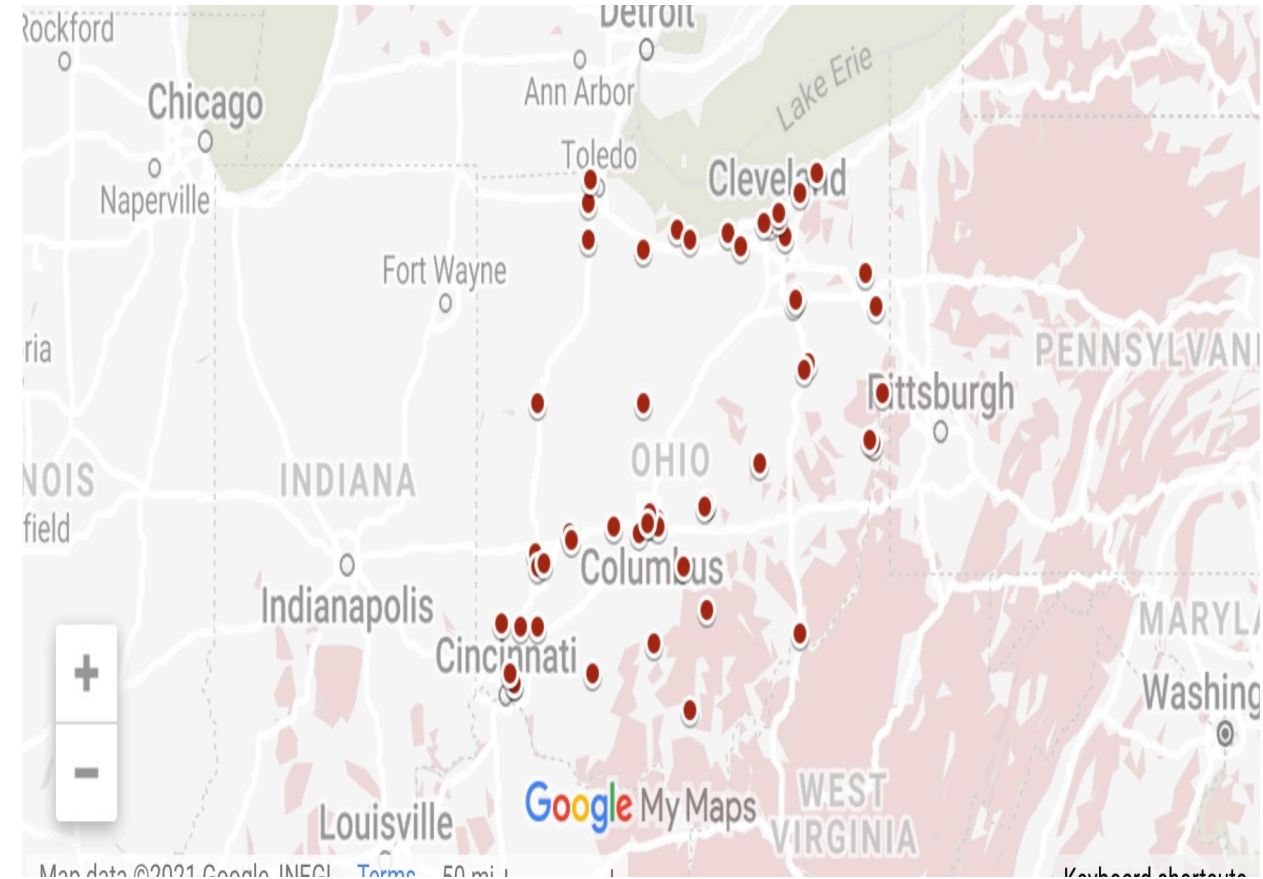


\*Washington, DC, legalized marijuana for recreational purposes, but doesn't allow sales.  
Source: Marijuana Policy Project



# Ohio

- Currently, there are 52 medical marijuana dispensaries in the state of Ohio with another 73 in the works.
- Almost 93,000 of Ohio's 11.75 million residents hold medical marijuana licenses.
- The result of this growing industry (pun intended) is an increase in the number of canine and feline exposures.





# The Plant: Cannabis Sativa



# Marijuana vs. Hemp

## Cannabis Sativa/Cannabis Indica

- Schedule I Controlled Substance
- Contains cannabinoids
- THC

## Cannabis Sativa

- Industrial Agricultural Products
- Contains Cannabinoids
- Little to no THC



# So...What's With All This CBD Stuff?

The short version:

- Your body has a system called the endocannabinoid system
- The endocannabinoid system consists of the endogenous cannabinoids (endocannabinoids, that's right, your body makes these), cannabinoid receptors and the enzymes that synthesize and degrade endocannabinoids. Endogenous cannabinoids affect the brain areas that influence pleasure, memory, thinking, concentration, movement, sensory and time perception. THC is similar to the brain chemical anandamide. Because of this similarity, THC can attach to cannabinoid receptors.
- **A topic definitely worthy of an entire lecture. I'm not the one...**



# Overview

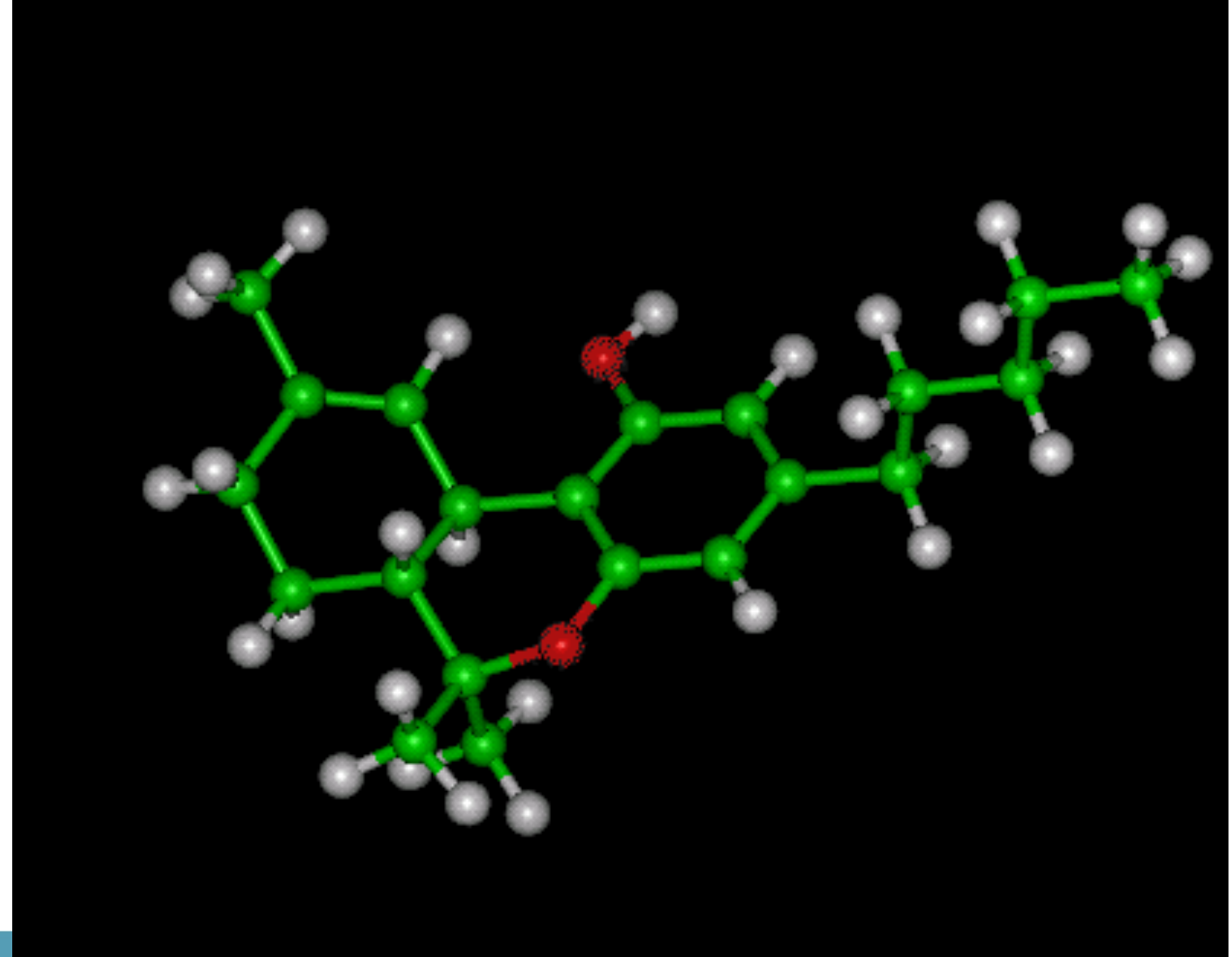
Today, we are going to review the effects of THC on canines, how to recognize signs of THC exposure, discussing potential exposure with clients, different forms of THC, and treatment for intoxication.





# The Molecule

- THC-Tetrahydrocannabinol
- The psychoactive substance found in marijuana



# Clinical Signs of THC Intoxication

CNS Depression

Ataxia

Mydriasis

Hyperesthesia

Ptyalism

Tremors

Acute Urinary Incontinence



# On Client Communication

- Be discreet
- Be clinical
- Offer an out
- Give them time to think about it
- Reassure them
- Offer testing



# Drug Testing



The **One Step Drug of Abuse Test** yields a positive result when the concentration of 11-OH- $\Delta^9$ -THC-9-COOH in urine exceeds 50ng/ml.

Yes friends, that's the name of the test we use





Dogs however, can also metabolize THC to 8-OH- $\Delta^9$ -THC-9-COOH with additional  $\beta$ -oxidation

What does that even mean?



It also takes somewhere between 30 minutes and three hours to produce those metabolites, longer if you've ingested instead of smoked



**SO.....Then What?**



**We test anyway!**



# Data August 2017- September 2018

- Not all dogs suspected of intoxication are tested, some are known to have ingested THC in some form and the owners declined to test
- 185 dogs suspected of THC intoxication were tested in this timeframe
- Of those tested, all displayed some clinical symptoms
- They were all tested on presentation
- 65 tested positive
- 120 tested negative
- A few of the more afflicted patients that initially tested negative, were retested after four to six hours
- All of those retested, tested positive after six hours



# Fun Facts

- Somewhere between 65-85% of THC (taken in edible form) is excreted in the feces and approximately 10-20% is excreted in urine
- Most is excreted within the first 5 days
- The THC molecule is highly lipophilic. It can deposit in adipose tissue, liver, lung and spleen
- The metabolite 11-OH- $\Delta^9$ -THC-9-COOH is more potent than THC
- Fatalities have occurred at 3-9g/kg. That's 3000-9000 mg/kg. A typical candy bar with 10 servings is 100mg. That's a lot





# Different Forms of Delivery

- Marijuana cigarettes/pipes
- Edibles
- Vaporizer pens/e-cigarettes
- Tinctures
- Indirect inhalation
- Other



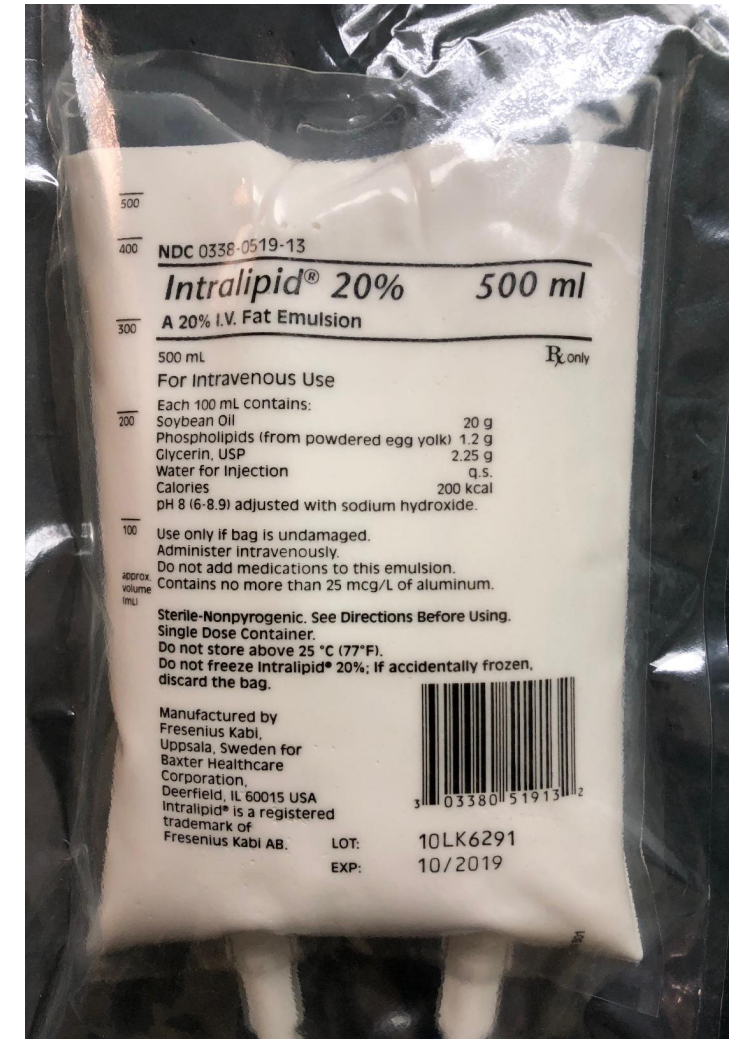
# Treatment

- Decontamination NOT an option if clinical, if a known exposure occurs and patient is not clinical, consider emesis
- Activated charcoal if patient not clinical and is able to swallow.
- IV fluids
- Antiemetics
- ILE therapy for severe cases



# Intravenous lipid emulsion (ILE)

- Intralipid- Baxter, Liposyn-Hospira, Medialipid-Braun
- Composed of medium to long chain triglycerides derived from plant oils (safflower oil, soybean oil) egg phosphatides, and glycerine
- Developed as PPN, Used in resuscitation patients undergoing cardiac arrest from severe local anesthetic drug toxicosis
- Used to treat toxicities from lipid soluble drugs such as baclofen, beta receptor antagonists, calcium channel blockers, ivermectin and moxidectin with some limited benefit for drugs such as lidocaine, cholecalciferol and Vitamin D3 analogs, permethrin, herbicides and some antipsychotic drugs
- Dosing: 1.5ml/kg IV bolus of 20% solution over 2 minutes, then followed by a CRI of 0.25ml/kg/min for 60 minutes.
- Adverse effects of ILE are rare in veterinary medicine. Reported effects in humans include hyperlipidemia, hepatosplenomegaly, jaundice, seizures, hemolytic anemia, fat embolism and thrombocytopenia



# Let's Review Some Cases!

Disclaimer:

Some names have been changed to protect patient confidentiality



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# Except Bear! His Owners Encourage Me To Talk About Him





# Bear, 8mo. M, Shih-Poo, 3.6kg

Hyperesthesia

Ataxia

Vitals WNL

Scavenger

Possible Exposure

Tested  
9:28am NEGATIVE  
5:14pm POSITIVE



Case  
disposition:  
Improved,  
Discharged at  
6pm



# Meet Winnie





Obtunded

Comatose

Hypothermic

Scavenger

Known  
Exposure

Tested  
**POSITIVE**



# Winnie - Part Two

Three Days Later.....

- Mentation: Dull

Vomiting, Diarrhea, Lethargy, Fever

- Dehydrated

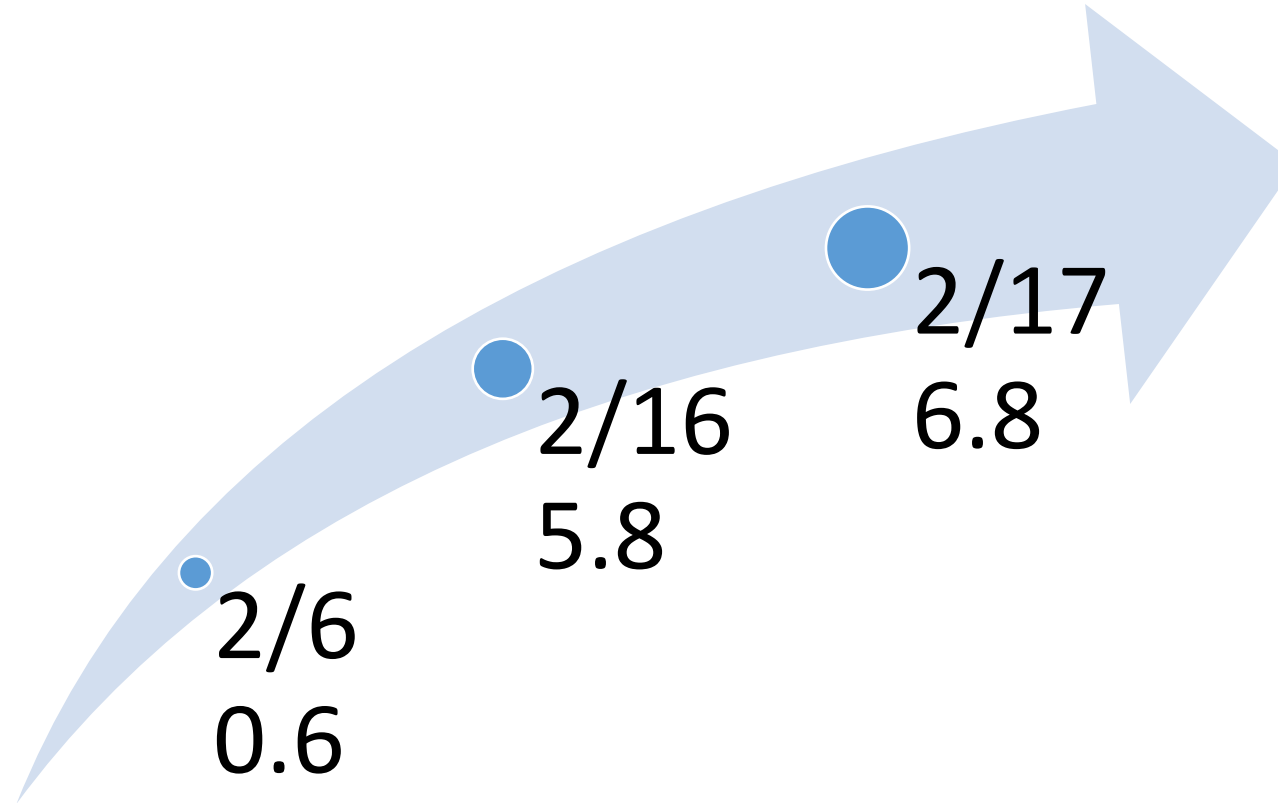
Elevated ALP, tBILI, AMYL

- Pancreatitis
- Hepatopathy



# Winnie Cont'd

TBILI increase Normal Range (0.0-0.3mg/dl)



# Mugsy, 6.5y M/N K9

- Owners brought Mugsy to MedVet Chicago's emergency services on Tuesday, February 27, 2018 around 19:58 for evaluation of an episode of ataxia.
- Owners brought Mugsy to MedVet Chicago's emergency services on Thursday, March 15, 2018 around 20:04 for evaluation of repeated episodes of drooling and ataxia.
- Owners brought Mugsy to MedVet Chicago's emergency services on Saturday, April 07, 2018 around 20:31 for evaluation of ataxia for the past 2 days and shaking





# This is how I imagine Mugsy



# Vitals

- 2/27 Mentation:QAR, T:100.0, HR:100, Resp: 24, mm:pk, CRT <2, pulses: SSP

**Neurologic:** alert and mentally appropriate, normal menace, generalized ataxia with delayed CP in hindlimbs, no cervical/spinal pain

- 3/15 Mentation: Sedate, T:99.3, HR:142, Resp: 28, mm:pk, CRT:1 sec, pulses: SSP

**Neurologic:** sedate, tetra ataxic, drooling

- 4/7 Mentation: QAR, HR:120, Resp:32, mm:pk, CRT: 2 sec, pulses:SSP

**Neurologic:** alert and mentally appropriate. Ambulatory x4 with pelvic climb ataxia and wide based stance. CP intact bilaterally. Mild, repeatable TL pain.



# Diagnostic Testing

2/27 UDS: THC POSITIVE

3/15 UDS: THC POSITIVE

4/07 UDS: NEGATIVE !!!!

Diagnosis: suspected spinal pain



# This is probably more like it



Mugsy is a Bichon, he probably hurt his back jumping up!



# Recap

- THC intoxication is increasingly more common
- Recognize the signs
- Inspire client to confide, honesty is the best policy
- Test, retest
- Supportive Care
- Monitoring
- Although rare, fatalities can occur



# References

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**BTW, THC isn't  
just for dogs!**



Photo courtesy of Dr. Jayme Hoffberg





Questions?

