Marijuana/Cannabis and CBD in Headache 2020

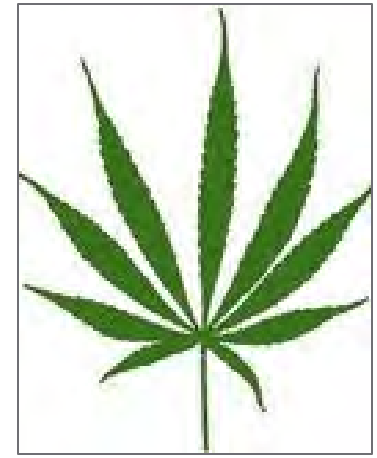
Michael J Marmura, MD

Associate Professor

Jefferson Headache Center

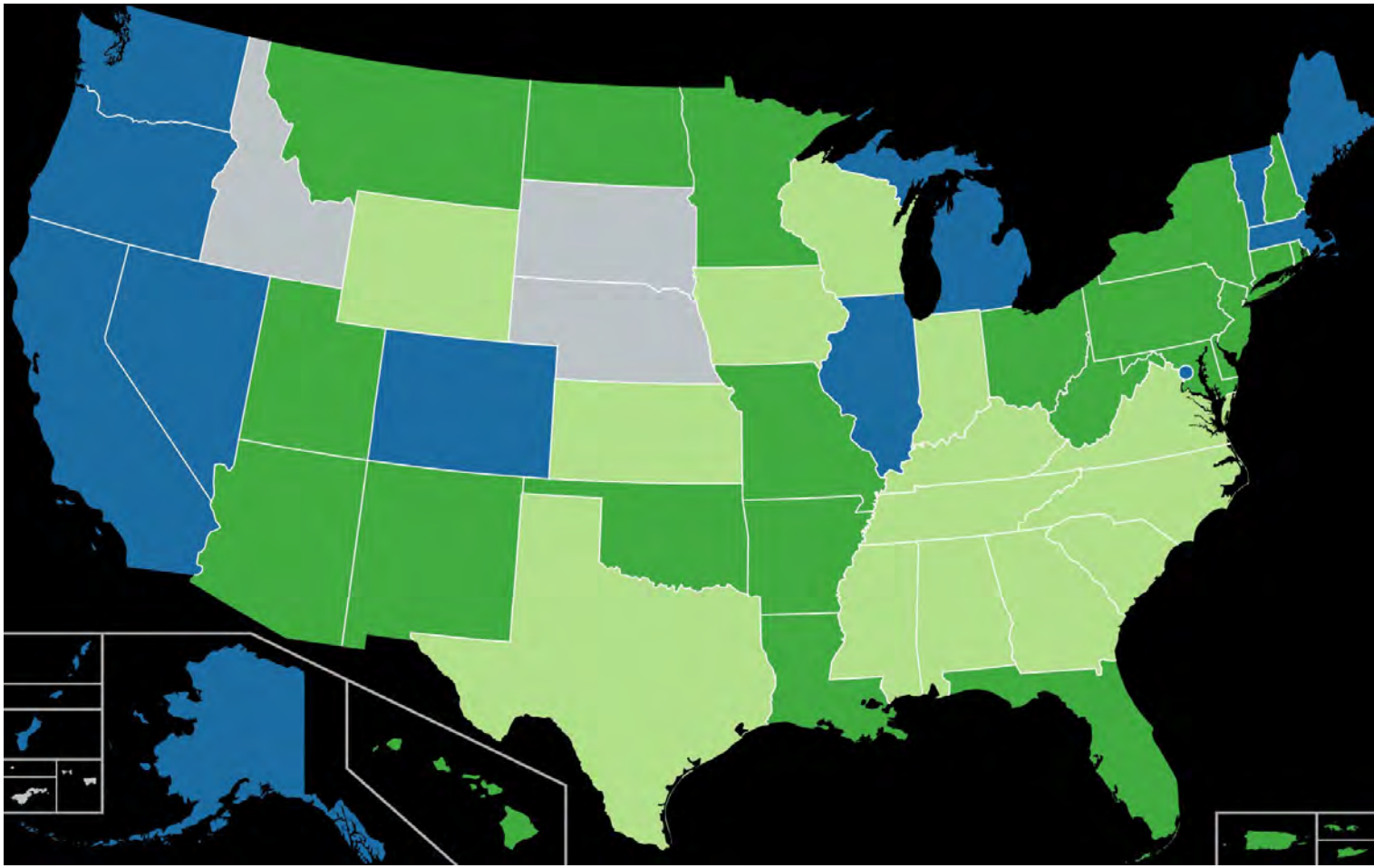
Thomas Jefferson University Hospital

Philadelphia, PA



Frequently Asked Questions:

- When should patients with headache consider medical marijuana/cannabis?
- What forms of medical cannabis are available?
- How does it work?
- Does it work?



No doctor's recommendation required

Doctor's recommendation required

Limited THC content (low-THC, high-CBD)

Prohibited

Find Medical Marijuana Near You

Medical Cannabis

For PA residents:

1. Register on the website
2. See an approved practitioner to get certified
3. Pay $50 for your medical marijuana ID card
4. Visit a Pennsylvania dispensary with your medical marijuana ID card.

Fact or Myth?

- Medical cannabis is more effective for migraine or cluster headache than other pain disorders.

Evidence for medical cannabis in pain:

Strong:

- Chronic pain in adults (especially to reduce opioid use)
- Spasticity (especially multiple sclerosis)

Moderate:

- Fibromyalgia
- Neuropathic Pain

Cannabis in migraine

- No controlled placebo controlled trials
- A few small retrospective database studies (single-center, patients enrolled in a clinic) exist
- Effectiveness in pain is not necessarily better than available medications (i.e. tricyclic antidepressants, gabapentin)

Rhyne et al. Pharmacotherapy. 2016 May;36(5):505-10.

Qualifying Medical Conditions (PA)

- Amyotrophic lateral sclerosis.
- Anxiety disorders.
- Autism.
- Cancer, including remission therapy.
- Crohn's disease.
- Damage to brain or spinal cord with objective neurological indication of intractable spasticity, and other associated neuropathies.
- Dyskinetic + spastic movement disorders.
- Epilepsy.
- Glaucoma.
- HIV / AIDS.
- Huntington's disease.
- Inflammatory bowel disease.
- Intractable seizures
- Multiple sclerosis.
- Neurodegenerative diseases.
- Neuropathies.
- Opioid use disorder for which conventional therapeutic interventions are contraindicated or ineffective, or for which adjunctive therapy is indicated
- Parkinson's disease.
- Post-traumatic stress disorder.
- Severe chronic or intractable pain of neuropathic origin or severe chronic or intractable pain **
- Sickle cell anemia.
- Terminal illness
- Tourette syndrome

** Migraine is an indication in NJ

Our experience:

- Most patients we certify have daily headache: migraine, post-traumatic and new daily persistent headache are common diagnoses.
- Anxiety (72.9%) and insomnia (62.5%) are common
- 71.4% used it two or more times per week, 25.0% every day.
- 71.4% used an inhaled form.
- Side effects included dry mouth/throat (46.4%), dry/red eyes (35.7%), fatigue/lethargy (35.7%), and increased appetite (35.7%).
- Before 46.4% of the subjects used acuyr medications > 10 days per month. After the rate dropped to 25.0%.
- Marijuana use seemed to improve anxiety: 57.1% reported improvement, and insomnia 78.6% reported improvement

How does cannabis it work?

- We have receptors called cannabinoid receptors: CB1 and 2
- CB1 is abundant in the brain. CB2 is mostly outside the brain but have a role in chronic pain
- These receptors are activated by endocannabinoids which (1) modulate release of neurotransmitters and (2) regulates homeostasis in the brain, skin, GI tract, liver, cardiovascular system, genitourinary function, and bone
- Some of the effects of endocannabinoids are similar to that of non-steroidal drugs (ibuprofen, naproxen, etc)
- Future treatments could promote endocannabinoids or prevent their breakdown

Fact or Myth?

- For patients with migraine, edible or capsule formulations are usually most effective

- Oral formulations usually take 2+ hours to take effect
- Must be metabolized by liver
- Potential for overconsumption
- Less evidence for chronic or acute pain

Inhalation

Smoking

Smoking

Vaping

Hookah

Dabbing

Dabbing: ‘dab’ of cannabis concentrate put onto heated surface (nail)

Sublingual

Tinctures

Oral

Candy

Baked goods

RX

Capsules

Nasal Sprays

Topical

MARY'S MEDICINALS

Transdermal Patch

Mary's award-winning patches are born out of a commitment to accurate dosing and the application of advanced delivery methods. Offering a quick onset and unsurpassed duration, Mary's patches are 2×2 squares, easy to use, and adhere simply to any veinous part of the skin for discreet, all day (or night) relief.

Single Dose Packaging | 10mg

CBD | Cannabidiol **THCa | Tetrahydrocannabinolic Acid**
CBN | Cannabinol **CBD:THC 1:1 | Cannabidiol/Tetrahydrocannabinol**

Single Dose Packaging | 20mg

THC Indica | Tetrahydrocannabinol
THC Sativa | Tetrahydrocannabinol

MEDICAL | RECREATIONAL

Rectal Suppository

Cannabis Vaginal Suppository
Menstrual Cramps

Cannabis plants: 2 natural compounds

1. Tetrahydrocannabinol (THC): psychoactive
2. Cannabidiol (CBD) not psychoactive

Both act on cannabinoid receptors (1 and 2) but THC is much stronger

CBD can either make THC more or less effective depending on the amount

Cannabis Sativa (Marijuana) vs Cannabis Sativa L. (Hemp)

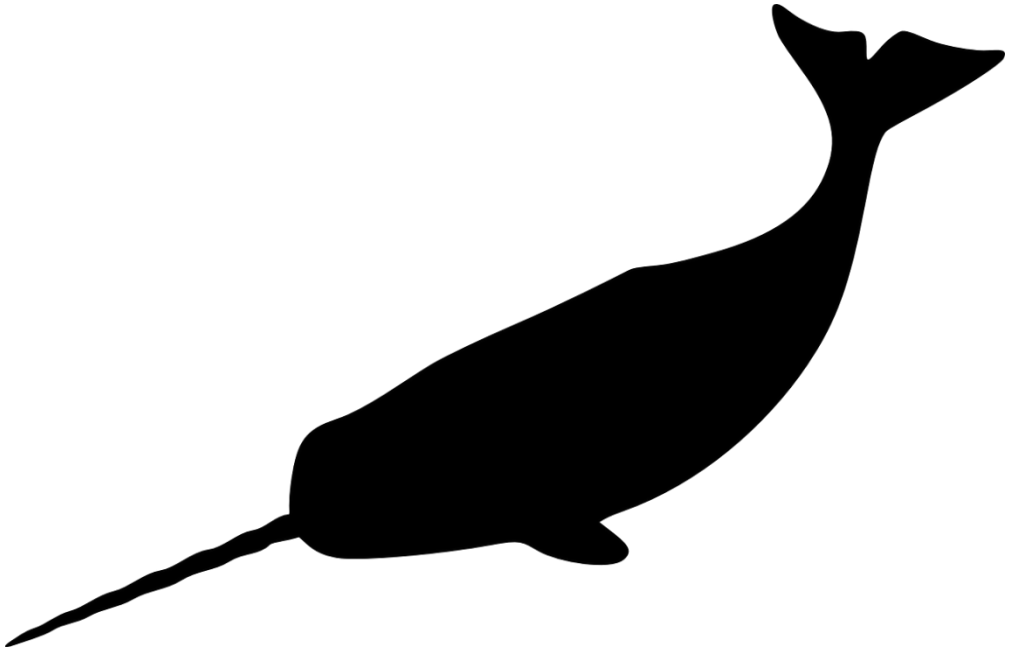
- Marijuana: flowers, stems, and leaves of female plant
  - High THC, low CBD

- Hemp: seed and fiber
  - Low THC, High CBD

A new neglected crop: cannabis Elizabeth Pennisi *Science* 21 Apr 2017:Vol. 356, 6335, 232-233

Fact or Myth?

- For patients with pain, we typically recommend products with THC, rather than CBD alone.



- No evidence for CBD products in acute or chronic pain
- Over the counter CBD products often very low dose, not clearly effective

Indications: THC

- Good Evidence
  - Cancer chemotherapy induced nausea and vomiting
  - Appetite loss and cachexia in cancer or HIV/AIDS
  - Neuropathic and chronic pain
  - Spasticity in multiple sclerosis (MS)
- Some Evidence
  - Tremor and bladder dysfunction in MS, spinal cord injury, Tourette syndrome, glaucoma, dystonia,IBS, Crohn's disease, pulmonary disease, and Parkinson's disease

Grotenhermena and Muller-Vahlb Critical Reviews in Plant Sciences 2016, 35, 5–6, 378–405

Cannabidiol (CBD)

No intoxication even in high doses

No reinforcement, craving, or compulsive use

CBD does not appear to convert to THC

Clinical studies:

- Anxiety and posttraumatic stress disorder
- Schizophrenia
- Parkinson’s disease
- Dystonia
- Dravet syndrome: severe myoclonic epilepsy of infancy (Lennox-Gastaut) FDA approved

Genus Cannabis

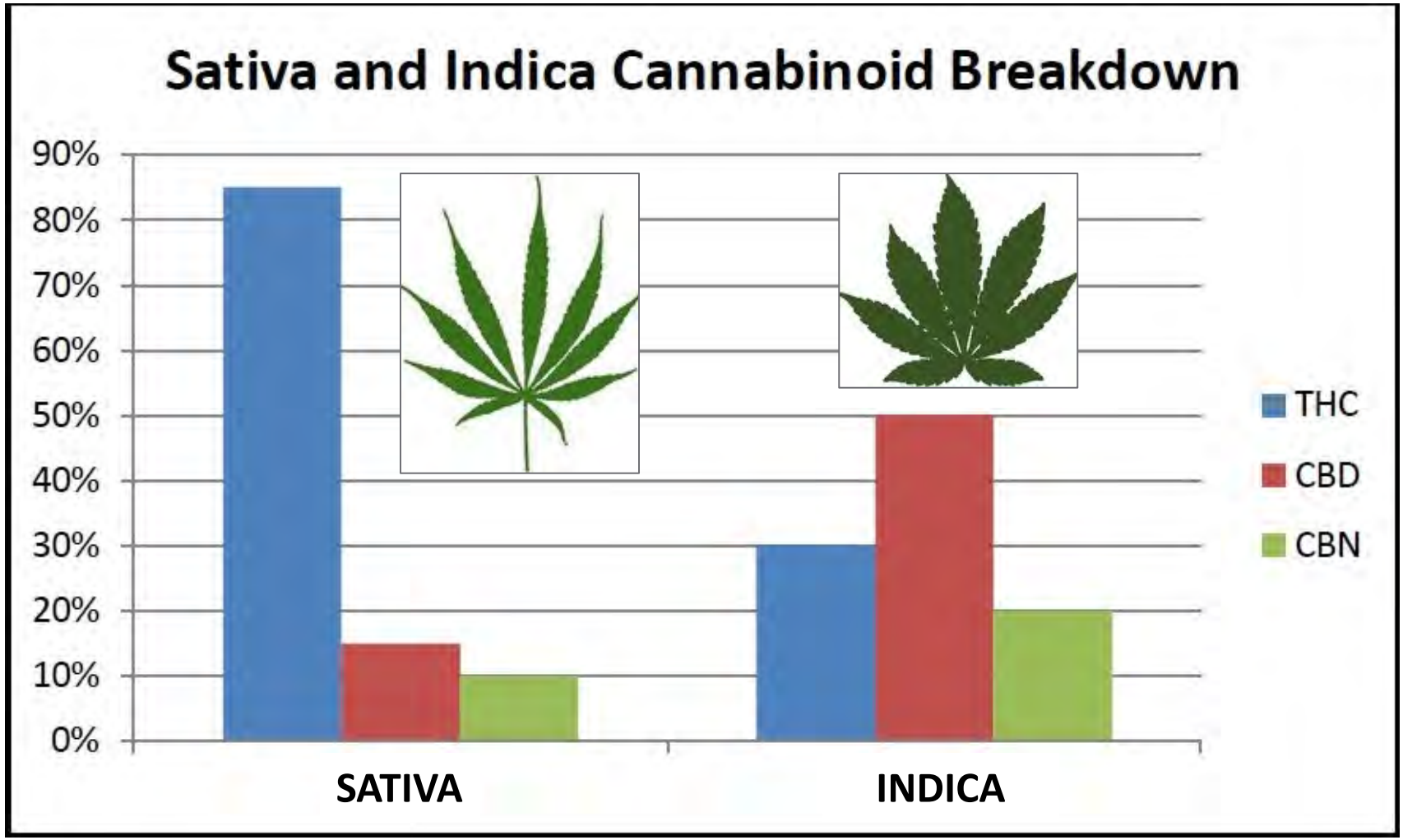
– *C. sativa:* tall with narrow leaves

  – Less sedating

– *C. indica:* short with dense branches

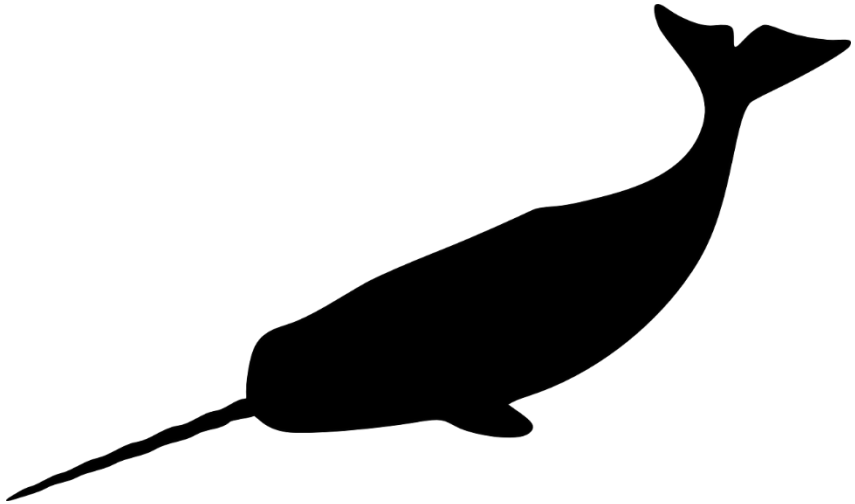
  – More sedating

A new neglected crop: cannabis Elizabeth Pennisi *Science* 21 Apr 2017:Vol. 356, 6335, 232-233


Sativa and Indica Cannabinoid Breakdown
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
THC
CBD
CBN
SATIVA
INDICA

Fact or Myth?

- Medical marijuana appears safer than many other pain medications – including opioids.



No risk of overdose
No physical dependence
Low rates of addiction in adults

Cannabis side effects

- Usually a pleasant relaxing experience but..
  - Occasionally anxiety/panic, well-being may alternate with dysphoria
  - Cognitive: distortion of time perception, memory lapses, difficulty in concentration
  - Improves taste and enhances sensory appeal of foods
- Increased heart rate, hypotension with standing
- Occasionally can CAUSE nausea or vomiting
- Not recommended in pregnancy or breastfeeding

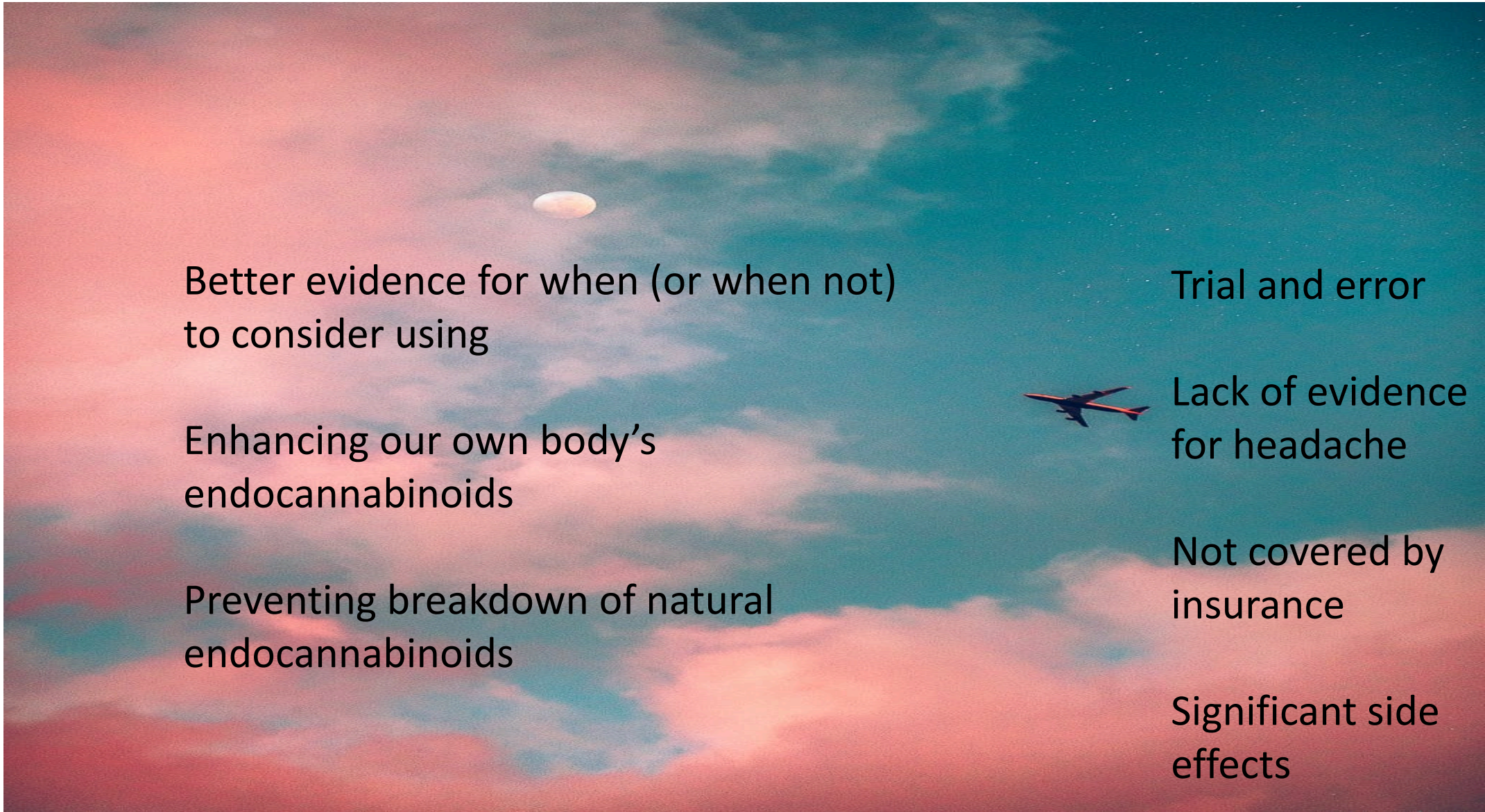
The Certification: Considerations

- How likely is it to help?
- Are therapies effective?
- For acute use or daily use?
- Are there barriers to using (job, cost, family)
- Plans for pregnancy?
- Risks of substance abuse/misuse/addiction

When do I recommend it for migraine?

- As acute treatment as a “rescue.” Especially if other medications ineffective or contraindicated
- When cost is not an issue. If for prevention willing to use >1/day
- Having significant disability, has been on multiple conventional treatments
- When we have an established relationship
- Patients should sign a contract prior to certification

Future Directions



Better evidence for when (or when not) to consider using

Enhancing our own body's endocannabinoids

Preventing breakdown of natural endocannabinoids

Trial and error

Lack of evidence for headache

Not covered by insurance

Significant side effects