



## **Evidence-Base of Efficacy With Related Dosing Information for Medical Marijuana & Cannabinoids**

*last updated: January 2016*

### **General Systematic Reviews**

- 1) Hill KP. Medical marijuana for treatment of chronic pain and other medical and psychiatric problems. *JAMA* 2015;313:2474-2483.

#### **Abstract**

**IMPORTANCE:** As of March 2015, 23 states and the District of Columbia had medical marijuana laws in place. Physicians should know both the scientific rationale and the practical implications for medical marijuana laws.

**OBJECTIVE:** To review the pharmacology, indications, and laws related to medical marijuana use.

**EVIDENCE REVIEW:** The medical literature on medical marijuana was reviewed from 1948 to March 2015 via MEDLINE with an emphasis on 28 randomized clinical trials of cannabinoids as pharmacotherapy for indications other than those for which there are 2 US Food and Drug Administration–approved cannabinoids (dronabinol and nabilone), which include nausea and vomiting associated with chemotherapy and appetite stimulation in wasting illnesses.

**FINDINGS:** Use of marijuana for chronic pain, neuropathic pain, and spasticity due to multiple sclerosis is supported by high-quality evidence. Six trials that included 325 patients examined chronic pain, 6 trials that included 396 patients investigated neuropathic pain, and 12 trials that included 1600 patients focused on multiple sclerosis. Several of these trials had positive results, suggesting that marijuana or cannabinoids may be efficacious for these indications.

**CONCLUSIONS AND RELEVANCE:** Medical marijuana is used to treat a host of indications, a few of which have evidence to support treatment with marijuana and many that do not. Physicians should educate patients about medical marijuana to ensure that it is used appropriately and that patients will benefit from its use.

- 2) Whiting PF, Wolff RF, Deshpande S, et al. Cannabinoids for medical use: a systematic review and meta-analysis. *JAMA* 2015;313:2456-2473.

#### **Abstract**

**IMPORTANCE:** Cannabis and cannabinoid drugs are widely used to treat disease or alleviate symptoms, but their efficacy for specific indications is not clear.



**OBJECTIVE:** To conduct a systematic review of the benefits and adverse events (AEs) of cannabinoids.

**DATA SOURCES:** Twenty-eight databases from inception to April 2015.

**STUDY SELECTION:** Randomized clinical trials of cannabinoids for the following indications: nausea and vomiting due to chemotherapy, appetite stimulation in HIV/AIDS, chronic Pain, spasticity due to multiple sclerosis or paraplegia, depression, anxiety disorder, sleep disorder, psychosis, glaucoma, or Tourette syndrome.

**DATA EXTRACTION AND SYNTHESIS:** Study quality was assessed using the Cochrane risk of bias tool. All review stages were conducted independently by 2 reviewers. Where possible, data were pooled using random-effects meta-analysis.

**MAIN OUTCOMES AND MEASURES:** Patient-relevant/disease-specific outcomes, activities of daily living, quality of life, global impression of change, and AEs.

**RESULTS:** A total of 79 trials (6462 participants) were included; 4 were judged at low risk of bias. Most trials showed improvement in symptoms associated with cannabinoids but these associations did not reach statistical significance in all trials. Compared with placebo, cannabinoids were associated with a greater average number of patients showing a complete nausea and vomiting response (47% vs 20%; odds ratio [OR], 3.82 [95%CI, 1.55-9.42]; 3 trials), reduction in pain (37% vs 31%; OR, 1.41 [95%CI, 0.99-2.00]; 8 trials), a greater average reduction in numerical rating scale pain assessment (on a 0-10-point scale; weighted mean difference [WMD], -0.46 [95%CI, -0.80 to -0.11]; 6 trials), and average reduction in the Ashworth spasticity scale (WMD, -0.36 [95%CI, -0.69 to -0.05]; 7 trials). There was an increased risk of short-term AEs with cannabinoids, including serious AEs. Common AEs included dizziness, dry mouth, nausea, fatigue, somnolence, euphoria, vomiting, disorientation, drowsiness, confusion, loss of balance, and hallucination.

**CONCLUSIONS AND RELEVANCE** There was moderate-quality evidence to support the use of cannabinoids for the treatment of chronic pain and spasticity. There was low-quality evidence suggesting that cannabinoids were associated with improvements in nausea and vomiting due to chemotherapy, weight gain in HIV infection, sleep disorders, and Tourette syndrome. Cannabinoids were associated with an increased risk of short-term AEs.

## **General References**

- 1) Health Canada. Information for Health Care Professionals. 2013  
<http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php>
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## **Severe Pain**

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### **Cancer (Chemotherapy-induced nausea and vomiting)**

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### **Cancer (cachexia and anorexia)**

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### **HIV or AIDS (cachexia and anorexia)**

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### **Cachexia**

See “Cancer (Cachexia and anorexia)” & “HIV or AIDS (cachexia and anorexia)”

### **Severe Nausea**

See “Cancer (Chemotherapy-induced nausea and vomiting)”

### **Glaucoma**

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