



Antiemetic/Antivertigo Agents – dronabinol

WA.PHAR.35 Antiemetic Antivertigo Agents Dronabinol

Medical necessity

Drug	Medical Necessity
Dronabinol (MARINOL®) Dronabinol (SYNDROS®)	Dronabinol may be considered medically necessary when: Used for the treatment of ONE of the following <ol style="list-style-type: none">1. Anorexia associated with weight loss in adults with AIDS2. Nausea and vomiting associated with chemotherapy in adults

Clinical policy:

Drug	Clinical Criteria (Initial Approval)
Dronabinol (MARINOL®) Dronabinol (SYNDROS®)	<ol style="list-style-type: none">1. Anorexia associated with weight loss in adults with AIDS<ol style="list-style-type: none">a. Defined by ONE of the following:<ol style="list-style-type: none">i. Involuntary weight loss in adults of greater than 10% of pre-illness baseline body weightii. BMI less than 20kg/m² in the absence of concurrent illness or medical condition other than AIDS that may cause weight lossb. History of failure, contraindication or intolerance to conventional therapies (e.g. megestrol (Megace®))c. Dose limit:<ol style="list-style-type: none">i. Marinol: 20mg per dayii. Syndros: 8.4mg twice daily2. Prescribed by or in consultation with an HIV specialist
Approve for 6 months	
Criteria (Reauthorization)	
	<ol style="list-style-type: none">1. Continued diagnosis of AIDS wasting with continued wasting based on reduction of BMI2. Documentation of positive clinical benefit
Approve for 6 months	
Clinical Criteria (Initial Approval)	
	<ol style="list-style-type: none">1. Nausea and vomiting associated with chemotherapy in adults<ol style="list-style-type: none">a. Current diagnosis or cancer or history of cancer diagnosis in last year

	<ul style="list-style-type: none"> b. Currently receiving chemotherapy or history of chemotherapy in the last year c. History of failure, contraindication or intolerance to conventional therapy (e.g. dexamethasone, ondansetron, aprepitant) <p>2. Dose limit:</p> <ul style="list-style-type: none"> a. Marinol: 15mg/m² per dose for 4 to 6 doses per day b. Syndros: 12.6mg/m² per dose for 4 to 6 doses per day <p>3. Prescribed by or in consultation with an oncology specialist</p>
	Approve for 6 months
	Criteria (Reauthorization)
	Documentation of positive clinical benefit
	Approve for 6 months

References

1. Product Information: MARINOL(R) oral capsules, dronabinol oral capsules. Solvay Pharmaceuticals, Inc, Marietta, GA, 2006.
2. Product Information: SYNDROS oral solution, dronabinol oral solution. Insys Therapeutics, Inc. (per FDA), Chandler, AZ, 2017.
3. Product Information: SYNDROS(TM) oral solution, dronabinol oral solution. Insys Therapeutics Inc (per FDA), Chandler, AZ, 2016.
4. Beal JE, Olson R, Laubenstein L, et al: Dronabinol as a treatment for anorexia associated with weight loss in patients with AIDS. J Pain Symptom Manage 1995; 10:89-97.
5. Anon: National Cancer Institute: Group C guidelines for the use of delta-9-tetrahydrocannabinol, NSC 134454, for nausea and vomiting induced by antineoplastic chemotherapy. Bethesda MD. Investigational Drug Branch, Cancer Therapy Evaluation Program, Division of Cancer Treatment, National Cancer Institute, 1980a.
6. Ungerleider JT, Andrysiak T, Fairbanks L, et al: Cannabis and cancer chemotherapy: a comparison of oral delta-9-THC and prochlorperazine. Cancer 1982; 50:636-645.
7. Chang AE: A prospective evaluation of delta-9-THC as an antiemetic in patients receiving adriamycin and cytoxan chemotherapy. Cancer 1981; 47:1746-1751.
8. Colls BM, Ferry DG, Gray AJ, et al: The antiemetic activity of tetrahydrocannabinol versus metoclopramide and thiethylperazine in patients undergoing cancer chemotherapy. N Z Med J 1980; 91:449-451.
9. Garb S, Beers AL, Bograd M, et al: Two-pronged study of tetrahydrocannabinol (THC) prevention of vomiting from cancer chemotherapy. IRCS J Med Sci 1980; 8:203-204.
10. Orr LE, McKernan JF, & Bloome B: Antiemetic effect of tetrahydrocannabinol: compared with placebo and prochlorperazine in chemotherapy-associated nausea and emesis. Arch Intern Med 1980; 140:1431-1433.
11. Sallan SE & Cronin CM: Is THC an effective antiemetic for cancer patients?. CA Cancer J Clin 1980; 30:283-285.
12. Chang AE, Shiling DJ, Stillman RC, et al: Delta-9-tetrahydrocannabinol as an antiemetic in cancer patients receiving high-dose methotrexate. Ann Intern Med 1979; 91:819-824.
13. Ekert H, Waters KD, Jurk IH, et al: Amelioration of cancer chemotherapy-induced nausea and vomiting by delta-9-tetrahydrocannabinol. Med J Aust 1979; 2:657-659.
14. Kluin-Neleman JC, Neleman FA, Meuwissen OJ, et al: Delta-9-tetrahydrocannabinol (THC) as an antiemetic in patients treated with cancer chemotherapy: a double-blind crossover trial against placebo. Vet Human Toxicol 1979; 21:338-340.

15. Neidhart JA, Gagen MM, Wilson HE, et al: Comparative trial of the antiemetic effects of THC and haloperidol. *J Clin Pharmacol* 1981a; 21(8-9 suppl):38S-42S.
16. Sallan SE, Zinberg NE, & Frei E III: Antiemetic effect of delta-9-tetrahydrocannabinol in patients receiving cancer chemotherapy. *N Engl J Med* 1975; 293:795-797.
17. Frytak S, Moertel CG, O'Fallon JR, et al: Delta-9-tetrahydrocannabinol as an antiemetic for patients receiving cancer chemotherapy: a comparison with prochlorperazine and a placebo. *Ann Intern Med* 1979; 91:825-830.
18. Lucas VS & Laszlo J: Delta-9-tetrahydrocannabinol for refractory vomiting induced by cancer chemotherapy. *JAMA* 1980; 243:1241-1243.
19. Kleinman S: Double blind trial of delta-9-THC versus placebo as an adjunct to prochlorperazine for chemotherapy-induced vomiting. *Curr Ther Res* 1983; 34:1014-1017.
20. Hesketh PJ, Kris MG, Basch E, et al: Antiemetics: American Society of Clinical Oncology clinical practice guideline update. *J Clin Oncol* 2017; Epub:Epub.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/)
21. Anon: ASHP Therapeutic guidelines on the pharmacologic management of nausea and vomiting in adult and pediatric patients receiving chemotherapy or radiation therapy or undergoing surgery. *Am J Health Syst Pharm* 1999; 56:729-764.
22. Layeeque R, Siegel E, Kass R, et al: Prevention of nausea and vomiting following breast surgery. *Am J Surg* 2006; 191(6):767-772.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/)
23. Jatoi A, Windschitl HE, Loprinzi CL, et al: Dronabinol versus megestrol acetate versus combination therapy for cancer-associated anorexia: a North Central Cancer Treatment Group study. *J Clin Oncol* 2002; 20:567-573.
24. Gonzalez-Rosales F & Walsh D: Intractable nausea and vomiting due to gastrointestinal mucosal metastases relieved by tetrahydrocannabinol (Dronabinol). *J Pain Symptom Manage* 1997; 14(5):311-314.
25. Neff GW, O'Brien CB, Reddy KR, et al: Preliminary observation with dronabinol in patients with intractable pruritus secondary to cholestatic liver disease. *Am J Gastroenterol* 2002; 97:2117-2119.
26. Petro DJ: Marihuana as a therapeutic agent for muscle spasm or spasticity. *Psychosomatics* 1980; 21:81-85.
27. Ungerleider JT, Andrysiak T, Fairbanks L, et al: Delta-9-THC in the treatment of spasticity associated with multiple sclerosis. *Adv Alcohol Subst Abuse* 1987; 7:39-50.
28. Clifford DB: Tetrahydrocannabinol for tremor in multiple sclerosis. *Ann Neurol* 1983; 13:669-671.
29. Petro DJ & Ellenberger C: Treatment of human spasticity with delta(9)-tetrahydrocannabinol. *J Clin Pharmacol* 1981; 21(suppl 8-9):413S-416S.
30. Muller-Vahl KR, Schneider U, Kolbe H, et al: Treatment of Tourette's syndrome with delta-9-tetrahydrocannabinol (letter). *Am J Psychiatry* 1999; 156(3):495.
31. Product Information: MARINOL(R) oral capsules, dronabinol oral capsules. AbbVie Inc (per FDA), North Chicago, IL, 2017.
32. Product Information: dronabinol oral capsules, dronabinol oral capsules. Watson Pharma, Inc. (per DailyMed), Parsippany, NJ, 2014.
33. Benowitz NL & Jones RT: Cardiovascular effects of prolonged delta-9-tetrahydrocannabinol ingestion. *Clin Pharmacol Ther* 1975; 18:287-297.
34. Beaconsfield P, Ginsburg J, & Rainsburg R: Marijuana smoking: cardiovascular effects in man and possible mechanisms. *N Engl J Med* 1972; 287:209-212.
35. Jones RT: Marijuana health and treatment issues. *Psychiatr Clin North Am* 1984; 7:703-712.
36. Jones RT: Cannabis and health. *Ann Rev Med* 1983; 34:247-258.
37. Aronow S & Cassidy J: Effect of marijuana and placebo-marijuana smoking on angina pectoris. *N Engl J Med* 1974; 291:65-67.
38. Miller RH, Dhingra RC, Kanakis C Jr, et al: The electrophysiological effects of delta-9-tetrahydrocannabinol (cannabis) on cardiac conduction in man. *Am Heart J* 1977; 94:740-747.

39. Devine ML, Greenberg BR, Icaza L, et al: Adverse reactions to delta-9-tetrahydrocannabinol given as an antiemetic in a multicenter study. *Clin Pharm* 1987; 6:319-322.
40. Consroe P, Carlini EA, Zwicher AP, et al: Interaction of cannabidiol and alcohol in humans. *Psychopharmacology* 1979; 66:45-50.
41. Anderson PO & McGuire GG: Delta-9-tetrahydrocannabinol as an antiemetic. *Am J Hosp Pharm* 1981; 38:639-646.
42. Product Information: Marinol(R), dronabinol. Roxane Laboratories, Columbus, OH, 1999.
43. Lemberger L, Weiss JL, Watanabe AM, et al: Delta-9-tetrahydrocannabinol: Temporal correlation of the psychologic effects and blood levels after various routes of administration. *N Engl J Med* 1972; 286:685-688.
44. Hollister LE, Gillespie HK, Ohlsson A, et al: Do plasma concentrations of delta(9)tetrahydrocannabinol reflect the degree of intoxication?. *J Clin Pharmacol* 1981; 21:171S-177S.
45. Ohlsson A, Lindgren JE, Wahlen A, et al: Plasma delta-9-tetrahydrocannabinol concentrations and clinical effects after oral and intravenous administration and smoking. *Clin Pharmacol Ther* 1980; 28:409-415.
46. Cocchetto DM, Owens SM, Perez-Reyes M, et al: Relationship between plasma delta-9-tetrahydrocannabinol concentration and pharmacologic effects in man. *Psychopharmacology* 1981; 75:158-164.
47. Hunt CA & Jones RT: Tolerance and disposition of tetrahydrocannabinol in man. *J Pharmacol Exp Ther* 1980; 215:35-44.
48. Product Information: MARINOL(R) oral capsules, dronabinol oral capsules. Unimed Pharmaceuticals, Inc, Marietta, GA, 2004.
49. Product Information: MARINOL(R) oral capsules, dronabinol oral capsules. AbbVie Inc (per FDA), North Chicago, IL, 2017.
50. Wempe MF, Oldland A, Stolzman N, et al: Stability of dronabinol capsules when stored frozen, refrigerated, or at room temperature. *Am J Health Syst Pharm* 2016; 73(14):1088-1092.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
51. Lane M, Smith FE, Sullivan RA, et al: Dronabinol and prochlorperazine alone and in combination as antiemetic agents for cancer chemotherapy. *Am J Clin Oncol* 1990; 13:480-484.
52. Jatoi A, Windschitl HE, Loprinzi CL, et al: Dronabinol versus megestrol acetate versus combination therapy for cancer-associated anorexia: a north central cancer treatment group study. *J Clin Oncol* 2002; 20:567-573.
53. Saitman A, Park HD, & Fitzgerald RL: False-positive interferences of common urine drug screen immunoassays: a review. *J Anal Toxicol* 2014; 38(7):387-396.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
54. Brahm NC , Yeager LL , Fox MD , et al: Commonly prescribed medications and potential false-positive urine drug screens. *Am J Health Syst Pharm* 2010; 67(16):1344-1350.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
55. Herring C, Muzyk AJ, & Johnston C: Interferences with urine drug screens. *J Pharm Pract* 2011; 24(1):102-108.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
56. Moeller KE, Lee KC, & Kissack JC: Urine drug screening: practical guide for clinicians. *Mayo Clin Proc* 2008; 83(1):66-76.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
57. Vincent EC, Zebelman A, Goodwin C, et al: Clinical inquiries. What common substances can cause false positives on urine screens for drugs of abuse?. *J Fam Pract* 2006; 55(10):893-894, 897.
[PubMed Abstract: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
[PubMed Article: http://www.ncbi.nlm.nih.gov/...](http://www.ncbi.nlm.nih.gov/...)
58. Baron JM, Griggs DA, Nixon AL, et al: The trazodone metabolite meta-chlorophenylpiperazine can cause false-positive urine amphetamine immunoassay results. *J Anal Toxicol* 2011; 35(6):364-368.

PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>

PubMed Article: <http://www.ncbi.nlm.nih.gov/...>

59. Vorce SP, Holler JM, Cawrse BM, et al: Dimethylamylamine: a drug causing positive immunoassay results for amphetamines. *J Anal Toxicol* 2011; 35(3):183-187.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
60. Kaplan YC, Erol A, & Karadas B: False-positive amphetamine/ecstasy (MDMA/3,4-methylenedioxymethamphetamine) (CEDIA) and ecstasy (MDMA/3,4-methylenedioxymethamphetamine) (DRI) test results with fenofibrate. *Ther Drug Monit* 2012; 34(5):493-495.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
61. Reidy L, Walls HC, & Steele BW: Crossreactivity of bupropion metabolite with enzyme-linked immunosorbent assays designed to detect amphetamine in urine. *Ther Drug Monit* 2011; 33(3):366-368.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
62. Quesada L, Gomila I, Fe A, et al: Fenofibric acid can cause false-positive urine methylenedioxymethamphetamine immunoassay results. *J Anal Toxicol* 2015; 39(9):734-740.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
63. Product Information: ZOLOFT(R) tablets, oral concentrated solution, sertraline hydrochloride tablets, oral concentrated solution. Pfizer (per Manufacturer), New York, NY, 2011.
64. Blank A, Hellstern V, Schuster D, et al: Efavirenz treatment and false-positive results in benzodiazepine screening tests. *Clin Infect Dis* 2009; 48(12):1787-1789.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
65. Product Information: oxaprozin oral tablets, oxaprozin oral tablets. Caraco Pharmaceutical Laboratories,LTD, Detroit, MI, 2005.
66. Birch MA, Couchman L, Pietromartire S, et al: False-positive buprenorphine by CEDIA in patients prescribed amisulpride or sulpiride. *J Anal Toxicol* 2013; 37(4):233-236.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
67. Product Information: SUSTIVA(R) oral capsules, oral tablets, efavirenz oral capsules, oral tablets. Bristol-Myers Squibb Company (per FDA), Princeton, NJ, 2014.
68. Product Information: SEROQUEL(R) oral tablets, quetiapine fumarate oral tablets. AstraZeneca Pharmaceuticals (per FDA), Wilmington, DE, 2011.
69. Cherwinski K, Petti TA, & Jekelis A: False methadone-positive urine drug screens in patients treated with quetiapine. *J Am Acad Child Adolesc Psychiatry* 2007; 46(4):435-436.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
70. Widschwendter CG, Zernig G, & Hofer A: Quetiapine cross reactivity with urine methadone immunoassays. *Am J Psychiatry* 2007; 164(1):172-.
 PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
 PubMed Article: <http://www.ncbi.nlm.nih.gov/...>
71. Zacher JL & Givone DM: False-positive urine opiate screening associated with fluoroquinolone use. *Ann Pharmacother* 2004; 38:1525-1528.
72. Product Information: LEVAQUIN(R) oral film coated tablets, solution, IV injection solution, concentrate, levofloxacin oral film coated tablets, solution, IV injection solution, concentrate. Janssen Pharmaceuticals, Inc. (per FDA), Titusville, NJ, 2013.
73. Product Information: RIFADIN(R) oral capsules, intravenous injection, rifampin oral capsules, intravenous injection. sanofi-aventis U.S. LLC, Bridgewater, NJ, 2010.



74. Product Information: SEROQUEL(R) oral tablets, quetiapine fumarate oral tablets. AstraZeneca Pharmaceuticals LP (per FDA), Wilmington, DE, 2013.