−This Clinical Resource gives subscribers
additional insight related to the Recommendations published in−

trc pharmacist's letter ™ trc prescriber's letter ™ trc pharmacy technician's letter ™

January 2020 ~ Resource #360108

Equianalgesic Dosing of Opioids for Pain Management

Equianalgesic doses contained in this chart are approximate, and should be used only as a guideline. Dosing must be titrated to individual response. There is often incomplete cross-tolerance among these drugs. ***Therefore, many experts recommend beginning with a 25% to 50% lower dose than the published equianalgesic dose when changing drugs and then titrate*** *to a safe/effective response.*[2,3,4,48] *Dosing adjustments for renal or hepatic insufficiency, cytochrome P450 drug interactions, genetics, and other conditions or medications that affect drug metabolism, kinetics, or response may also be necessary.*[2,34] *Also consider pain control at time of switch.*[3,4,48] *In general, use cautious dosing for elderly or debilitated patients, and patients with renal or hepatic impairment.*[2,34] *Some products have specific dosing recommendations for these populations (****see footnotes****). See our Opioid Conversion Algorithm for instructions on converting from one opioid to another.*

An equianalgesic dose calculator is available at http://agencymeddirectors.wa.gov/Calculator/DoseCalculator.htm.

NA = not available. Continue to the next section for dosing of "atypical opioids" (e.g., tramadol, etc).

Drug	**Equianalgesic Doses (mg)**[1,3,4,41]		**Approximate Equianalgesic 24 hr Dose (Assumes Around-the-Clock Dosing)**[g]		**Usual Starting Dose (Opioid-Naive Adults) (Doses NOT Equianalgesic)**	
	Parenteral	**Oral**	**Parenteral**	**Oral**	**Parenteral**	**Oral**
Morphine (immediate-release tablet, capsule [Canada], oral solution, injection)	10	30	3-4 mg q 4 h	10 mg q 4 h	2-5 mg q 4 h (acute or chronic pain)[50]	10 mg q 4 h (can start with 15 mg, per U.S. labeling)[10,41,70]
Extended-release morphine (*MS Contin*, *Kadian*, *Morphabond ER* [U.S.], *Arymo ER* [U.S.], *M-Eslon* [Canada])	NA	30 See footnote e.	NA	30 mg q 12 h *Kadian*: 30 mg q 12 h or 60 mg q 24 h[6,21,e]	NA	**U.S.**: 15 mg q 8-12 h[51,29,53,c] **Canada** (*MS Contin*, *M-Elson*): 15-30 mg q 12 h[9,57,c] ***Kadian* not for opioid-naive** patients.[6,21]
Extended-release morphine/naltrexone capsule (*Embeda*, U.S.])	NA	30	NA	30 mg q 12 h or 60 mg q 24 h[12]	NA	20/0.8 mg q 24 h[12,c]

More. . .

Phone: 209-472-2240 ~ Fax: 209-472-2249
pharmacist.therapeuticresearch.com ~ prescriber.therapeuticresearch.com ~ pharmacytech.therapeuticresearch.com

Drug	**Equianalgesic Doses (mg)[1,3,4,41]**		**Approximate Equianalgesic 24 hr Dose (Assumes Around-the-Clock Dosing)[g]**		**Usual Starting Dose (Opioid-Naive Adults) (Doses NOT Equianalgesic)**	
	Parenteral	**Oral**	**Parenteral**	**Oral**	**Parenteral**	**Oral**
Hydromorphone (*Dilaudid*)	1.5	6 to 7.5	0.4 mg q 4 h	2 mg q 4 h	See footnote a	2 mg q 4-6 h[41] See footnote a.
Controlled-release hydromorphone (*Hydromorph Contin* [Canada])	NA	6	NA	6 mg q 12 h	NA	3 mg q 12 h[30,c]
Extended-release hydromorphone (*Exalgo* [U.S.])	NA	See footnote b.	NA	See footnote b.	NA	Not for opioid-naive patients.[13]
Oxycodone (e.g., *Roxicodone* [U.S.], *Oxy IR* [Canada], also in *Percocet* [U.S.], others)	NA	20	NA	5-10 mg q 4 h	NA	5-15 mg q 4-6 h (U.S.);[42] 5-10 mg q 6 h (Canada)[43] (product labeling) 5-10 mg q 8-12 h[14] (chronic noncancer pain guidelines) or 5 mg q 4-6 h (acute/chronic noncancer pain guidelines)[41]
Extended-release oxycodone (*OxyContin* [U.S.], *OxyNeo* [Canada]), *Xtampza ER* [U.S.])	NA	20 See footnote h.	NA	20 mg q 12 h	NA	10 mg q 12 h[5,7] (*Xtampza ER*: 9 mg q 12 h[66])[c]
Controlled-release oxycodone/naloxone (*Targin* [Canada])	NA	20	NA	20/10 mg q 12 h	NA	10/5 mg q 12 h[11,c]

More. . .

Drug	**Equianalgesic Doses (mg)[1,3,4,41]**		**Approximate Equianalgesic 24 hr Dose (Assumes Around-the-Clock Dosing)[g]**		**Usual Starting Dose (Opioid-Naive Adults) (Doses NOT Equianalgesic)**	
	Parenteral	**Oral**	**Parenteral**	**Oral**	**Parenteral**	**Oral**
Oxymorphone (*Opana* [U.S.])	NA	10	NA	5 mg q 6 h	NA	10-20 mg q 4-6 h (acute pain)[44,d] 5-10 mg q 8-12 h[14] (chronic noncancer pain guidelines) or 5-10 mg q 4-6 h[41] (acute/chronic noncancer pain guidelines)
Extended-release oxymorphone (generic only)[i]	NA	10	NA	10 mg q 12 h	NA	5 mg q 12 h[59,c]
Extended-release hydrocodone bitartrate (*Zohydro ER* [U.S.], *Hysingla ER* [U.S.])	NA	See footnote f.	NA	See footnote f.	NA	*Zohydro ER*: 10 mg q 12 h (chronic pain)[58,c] *Hysingla ER*: 20 mg q 24 h (chronic pain)[62,c]
Hydrocodone bitartrate/acetaminophen (e.g., *Norco* [U.S.], others)	NA	30	NA	10 mg q 4 h	NA	5-10 mg q 4-6 h (product labeling)[45] 5-10 mg q 4-12 h (acute/chronic noncancer pain guidelines)[14,41]
Benzhydrocodone/acetaminophen (*Apadaz*)	NA	25[68] See footnote f.	NA	8.16 mg q 4 h	NA	4.08-8.16 mg q 4-6 h (acute pain only [up to 14 days' use])[68]

More. . .

Drug	**Equianalgesic Doses (mg)[1,3,4,41]**		**Approximate Equianalgesic 24 hr Dose (Assumes Around-the-Clock Dosing)[g]**		**Usual Starting Dose (Opioid-Naive Adults) (Doses NOT Equianalgesic)**	
	Parenteral	**Oral**	**Parenteral**	**Oral**	**Parenteral**	**Oral**
Codeine A weak opioid.[1] Analgesic efficacy limited by a dose ceiling.[46] Patients on codeine may have little or no opioid tolerance.[14]	100-120	200	30 mg q 4 h	60 mg q 4 h	10 mg q 3-4 h[52]	15-60 mg q 4 h (product labeling)[46] 30 mg q 4-6 h (acute/chronic noncancer pain guidelines)[41]
Controlled-release codeine (*Codeine Contin* [Canada]) Reduce dose by 25% when switching from oral **codeine** phosphate (75% codeine base) due to phosphate content of tablet.[49] *Codeine Contin* doses expressed as codeine base.[49] A weak opioid.[1] Analgesic efficacy limited by a dose ceiling.[49] Patients on codeine may have little or no opioid tolerance.[14]	NA	200	NA	200 mg q 12 h	NA	50 mg q 12 h[49,c]
Methadone (*Dolophine* [U.S.], *Metadol* [Canada]) Relatively safe choice in renal or liver insufficiency.[54,55]	Variable	Variable	**For opioid-tolerant patients only**.[14,35] The conversion ratio of methadone is highly variable depending on factors such as patient tolerance, opioid dose, and length of dosing (short-term versus chronic dosing). Some experts recommend that only those with substantial experience with its use should prescribe methadone.[39,55] For more information of safe methadone use, including dosing and conversion methods, see our chart, *Methadone for Pain: Focus on Safety*.			
Meperidine (*Demerol*)	75-100	300	Avoid due to poor efficacy and neurotoxicity, including seizures, myoclonus, tremors, agitation, delirium, and confusion, especially in patients with renal or liver dysfunction or the elderly, due to accumulation of the metabolite normeperidine.[1,4,16-18]			

More. . .

Drug	**Equianalgesic Doses (mg)[1,3,4,41]**		**Approximate Equianalgesic 24 hr Dose (Assumes Around-the-Clock Dosing)[g]**		**Usual Starting Dose (Opioid-Naive Adults) (Doses NOT Equianalgesic)**	
	Parenteral	**Oral**	**Parenteral**	**Oral**	**Parenteral**	**Oral**
Oliceridine (*Olinvyk*)	2 mg[71]	NA	0.5 mg q 3 h	NA	1.5 mg, then 1 mg q 1 to 3 h[71]	NA
Fentanyl Relatively safe choice in renal insufficiency or cirrhosis.[4,55] Clearance reduced by uremia.[54] Do not start patch in renal failure, and avoid patch in advanced liver disease.[54] Watch for delayed toxicity.[54,55]	0.1	NA	All noninjectable fentanyl products are **for opioid-tolerant patients only (i.e., taking 60 mg or more of morphine or its equivalent daily for at least 1 week)**. Do **not** convert mcg for mcg among fentanyl products (i.e., patch, transmucosal lozenge [*Actiq* (U.S.)], buccal tablet [*Fentora*], nasal spray [*Lazanda* (U.S.)], sublingual tablet [*Abstral*]), sublingual spray [*Subsys*]. See specific product labeling (U.S.: Drugs@FDA; Canada: Health Canada Drug Product Database) for dosing. **Patch product labeling** recommendations (e.g., switch patients **from** oral morphine 60 to 134 mg daily or its equivalent **to** fentanyl 25 mcg/hr patch) are conservative.[63,64] Therefore, the use of this conversion **from the patch to another opioid** can lead to overdose, and should **not** be done.[63,64] Some experts use a conversion factor of oral morphine 60 mg = fentanyl patch 25 mcg/hr in patients with chronic cancer pain, and round up or down based on patient factors, available patch sizes, and clinical judgment.[56] In the U.S. "intermediate" patch strengths not studied in clinical trials (37.5 mcg/hr, 62.5 mcg/hr, 87.5 mcg/hr) are available for use during conversion or titration for patients who would normally be converted/stepped up to the 50 mcg/hr, 75 mcg/hr, or 100 mcg/hr patch, but for whom these doses might be too high.[65]			

More. . .

Atypical Opioids: analgesics with mixed receptor effects and dose ceilings	
Buprenorphine: partial mu receptor agonist/kappa receptor antagonist[40]	***Butrans*** (transdermal patch): initial dose for patients taking <30 mg of oral morphine or equivalent per day (including opioid-naive) is a 5 mcg/hr patch applied once weekly (Canada: start with 5 mcg/hr patch in opioid-naive patients, and 5-10 mcg/hr patch in patients taking up to 80 mg oral morphine equivalents per day).[47,60] U.S.: When converting from 30 to 80 mg of oral morphine equivalents daily dose, first taper to 30 mg oral morphine equivalent per day (to reduce risk of precipitated withdrawal), then start with the 10 mcg/hr patch.[60] The maximum dose is one 20 mcg/hr patch once weekly.[47,60] ***Belbuca*** (buccal film): initial dose for opioid-naive patients is 75 mcg once daily or q 12 h. For patients taking opioids, first taper the dose to 30 mg oral morphine equivalent per day (to reduce risk of precipitated withdrawal), then choose a *Belbuca* dose based on the previous opioid dose: 75 mcg once daily or q 12 h (<30 mg/day oral morphine equivalent), 150 mcg q 12 h (30 to 89 mg/day oral morphine equivalent), or 300 mcg q 12 h (90 to 160 mg/day oral morphine equivalent).[67] Consider an alternative agent for patients taking higher opioid doses.[67]
Tapentadol (*Nucynta*, *Nucynta ER*): mu receptor agonist/norepinephrine reuptake inhibitor[31]	Consider a conversion of 100 mg **tapentadol** for 30 mg morphine.[4,31] For opioid-naive patients, the starting dose of tapentadol extended-release is 50 mg twice daily.[31,32] The maximum dose of tapentadol extended-release is 250 mg twice daily.[31,32] The starting dose of immediate-release tapentadol is 50 to 100 mg q 4 to 6 h.[33,38] The maximum total daily dose of immediate-release tapentadol is 600 mg (700 mg on day 1).[33,38] Not for use in severe renal or hepatic dysfunction.[31-33,38]
Tramadol (e.g., *Ultram*, *Ralivia* [Canada], combination products with acetaminophen): weak mu receptor agonist/ weak serotonin and norepinephrine reuptake inhibitor[1,22]	Total daily dose-equivalencies suggested vary in the literature (e.g., 10:1 [tramadol 300 mg = morphine 30 mg]; Canadian labeling, 6:1 [tramadol 400 mg = morphine 66.7 mg]).[1,37] The maximum daily dose of tramadol is 300 mg to 400 mg, depending on the product.[22,23,25-28,36,37,61] Also see product labeling for dosing in elderly, or in renal or hepatic dysfunction. May cause withdrawal in opioid-tolerant patients.[37]
Mixed Agonist/Antagonists: kappa receptor agonist or partial agonist/high affinity but poor (partial or no) efficacy at mu receptor[40,69]	Parenteral morphine 10 mg is approximately equal to parenteral **pentazocine** 60 mg, oral pentazocine 180 mg, parenteral **butorphanol** 2 mg, and parenteral **nalbuphine** 10 mg.[19] The analgesic efficacy of these drugs is limited by a dose ceiling.[40] Also, kappa agonist effects can include dysphoria, psychotomimetic effects, and feedback inhibition of the endorphin system, leading to dysesthesia.[24,40] May cause withdrawal in opioid-tolerant patients.[50]

More. . .

a. Product labeling for **hydromorphone** recommends a starting dose of 0.2 mg to 1 mg IV every two to three hours (Canadian monograph: 2 mg IV every four to six hours), or 2 mg to 4 mg orally (tablets) every four to six hours.[8,15,20] An even lower oral starting dose (2 mg two or three times daily) has been recommended for chronic pain in opioid-naive patients.[14] Some institutions use even lower doses of parenteral hydromorphone (e.g., 0.2 mg to 0.5 mg every two hours as needed). One regimen starts opioid-naive patients at 0.2 mg IV every two hours as needed for mild or moderate pain, with the option in moderate pain to give an extra 0.2 mg after 15 minutes if relief is inadequate after the first 0.2 mg dose. For severe pain, 0.5 mg IV every two hours as needed is used initially. In adults <65 years of age, the 0.5 mg dose can be repeated in 15 minutes if relief is inadequate, for a maximum of 1 mg in two hours.
b. Per the product labeling, convert **to *Exalgo*** 12 mg *from* oral codeine 200 mg, hydrocodone 30 mg, morphine 60 mg, oxycodone 30 mg, oxymorphone 20 mg, or transdermal fentanyl 25 mcg/hr. (These conversion doses should NOT be used when switching from *Exalgo* to another opioid.) After 50% dose reduction for incomplete cross-tolerance, reduce dose again by 50% for moderate renal impairment, and by 75% for severe renal or moderate hepatic impairment. Not for use in severe hepatic impairment.[13]
c. Some experts do not recommend long-acting products for chronic noncancer pain in opioid-naive patients.[14]
d. Start with an oral **oxymorphone** dose of 5 mg q 4-6 h for opioid-naive elderly or opioid-naive patients with creatinine clearance <50 mL/min. or mild liver impairment.[44]
e. ***Kadian*** labeling: switch patients receiving any opioid other than morphine to 30 mg q 24 h to start.[6] ***Morphabond ER*** labeling: switch patients receiving any opioid other than morphine to 15 mg q 8-12 h to start.[51] ***Arymo ER*** labeling: switch patients receiving any opioid other than morphine to 15 mg q 8-12 h.[53]
f. ***Zohydro ER.*** Conversion factors for converting **to *Zohydro ER*** are 1 for hydrocodone, methadone, or oxycodone; 2 for oxymorphone; 2.67 for hydromorphone; 0.67 for morphine; and 0.1 for codeine. Sum the current total daily dose of opioid, then multiply by the conversion factor to get the total daily *Zohydro ER* dose. Reduce by 25%. Divide q 12 h. Round down. Fentanyl 25 mcg/h patch = *Zohydro ER* 10 mg q 12 h. Start 18 h after removing patch.[58] (Conversion factors should NOT be used to switch **from** *Zohydro ER* to another opioid.) ***Hysingla ER***. Conversion factors for converting **to *Hysingla ER*** are 0.15 for codeine, 4 for hydromorphone, 1.5 for methadone, 0.5 for morphine, 1 for oxycodone, 2 for oxymorphone, and 0.1 for tramadol. Reduce the calculated dose by 25% and give once daily. Patients taking hydrocodone can switch to ***Hysingla ER*** at the same total daily dose taken once daily.[62] ***Apadaz*** labeling recommends substituting *Apadaz* 6.12 mg for hydrocodone bitartrate 7.5 mg.[68]
g. Examples of doses seen in clinical practice, taking into account available dosage strengths.
h. ***Xtampza ER*** labeling: switch patients receiving any opioid other than oxycodone to 9 mg q 12 h.[66]
i. Per the product labeling, oral **oxymorphone** 10 mg ER is approximately equivalent to hydrocodone 20 mg or oxycodone 20 mg.[59]

Users of this resource are cautioned to use their own professional judgment and consult any other necessary or appropriate sources prior to making clinical judgments based on the content of this document. Our editors have researched the information with input from experts, government agencies, and national organizations. Information and internet links in this article were current as of the date of publication.

More. . .

Project Leader in preparation of this clinical resource (360108): *Melanie Cupp, Pharm.D., BCPS; last modified January 2021.*

References

1. National Cancer Institute. Cancer pain (PDQ)-Health professional version. Updated October 30, 2019. Available at: https://www.cancer.gov/about-cancer/treatment/side-effects/pain/pain-hp-pdq#cit/section_4.23 2018. (Accessed November 21, 2019).
2. Pergolizzi J, Boger RH, Budd K, et al. Opioids and the management of chronic severe pain in the elderly: consensus statement of an international expert panel with focus on the six clinically most often used World Health Organization step III opioids (buprenorphine, fentanyl, hydromorphone, methadone, morphine, oxycodone). *Pain Pract* 2008;8:287-313.
3. Agency for Healthcare Research and Quality. Morbidity & mortality rounds on the web. Cases & commentaries. Strassels SA. Miscalculated risk. Hospital medicine. August 2006. https://psnet.ahrq.gov/cases/case/132. (Accessed November 21, 2019).
4. Davis MP, Dalal S, Goforth H, et al. Pain assessment and management. In: Shega JW, Paniagua MA, editors. Essential practices in hospice and palliative medicine. 5th ed. Chicago, IL: American Academy of Hospice and Palliative Medicine; 2017.
5. Product information for *OxyContin*. Purdue Pharma, L.P. Stamford, CT 06901. October 2019.
6. Product information for *Kadian*. Allergan USA. Irvine, CA 92612. December 2016.
7. Product monograph for *OxyNeo*. Purdue Pharma. Pickering, ON L1W 3W8. February 2018.
8. Product information for *Dilaudid* injection. Fresenius Kabi. Lake Zurich, IL 60047. October 2018.
9. Product monograph for *M-Elson*. Ethypharm. Montreal, QC H3B 4W5. June 2019.
10. Product monograph for MS IR. Purdue Pharma. Pickering, ON L1W 3W8. February 2018.
11. Product monograph for *Targin*. Purdue Pharma. Pickering, ON L1W 3W8. February 2018.
12. Product information for *Embeda*. Pfizer Inc. New York, NY 10017. October 2019.
13. Product information for *Exalgo*. SpecGx. Webster Groves, MO 63119. October 2019.
14. Manchikanti L, Abdi A, Atluri S, et al. American Society of Interventional Pain Physicians (ASIPP) guidelines for responsible opioid prescribing in chronic non-cancer pain: part 2-guidance. *Pain Physician* 2012;15(3 Suppl):S67-S116.
15. Product information for *Dilaudid* oral liquid and tablets. Rhodes Pharmaceuticals. Coventry, RI 02816. October 2019.
16. Product information for *Demerol*. Hospira. Lake Forest, IL 60045. October 2019.
17. Raymo LL, Camejo M, Fudin J. Eradicating analgesic use of meperidine in a hospital. *Am J Health Syst Pharm* 2007;64:1148-52.
18. Clinical Resource, *Potentially Harmful Drugs in the Elderly: Beers List*. *Pharmacist's Letter/Prescriber's Letter*. March 2019.
19. Product monograph for *Codeine Contin*. Purdue Pharma. Pickering, ON L1W 3W8. November 2016. https://pdf.hres.ca/dpd_pm/00037230.PDF. (Accessed November 22, 2019).
20. Product monograph for *Dilaudid*. Purdue Pharma. Pickering, ON L1W 3W8. March 2018.
21. Product monograph for *Kadian*. BGP Pharma ULC. Etobicoke, ON M8Z 2S6. March 2018.
22. Product information for *Ultram*. Janssen Pharmaceuticals Inc. Titusville, NJ 08560. October 2019.
23. Product information for *Ultracet*. Janssen Pharmaceuticals Inc. Titusville, NJ 08560. October 2019.
24. Terrie YC. An overview of opioids. *Pharmacy Times*. June 13, 2011. http://www.pharmacytimes.com/publications/issue/2011/june2011/an-overview-of-opioids. (Accessed November 22, 2019).
25. Product monograph for *Ralivia*. Valeant Canada LP. Montreal, QC H4R 2P9. March 2018.
26. Product monograph for *Tramacet*. Janssen-Ortho Inc. Toronto, ON M3C 1L9. July 2019.
27. Product monograph for *Zytram XL*. Purdue Pharma. Pickering, ON L1W 3W8. March 2018.
28. Product monograph for *Tridural*. Labopharm Inc. Laval, QC H7V 4B4. April 2018.
29. Product information for *MS Contin*. Purdue Pharma, L.P. Stamford, CT 06901. December 2016.
30. Product monograph for *Hydromorph Contin*. Purdue Pharma. Pickering, ON L1W 3W8. February 2018.
31. Product monograph for *Nucynta* extended-release. Endo Ventures Ltd. Paladin Labs, Inc. Montreal, QC H4M 2P2. March 2018.
32. Product information for *Nucynta ER*. Collegium Pharmaceutical. Stoughton, MA 02072. October 2019.
33. Product information for *Nucynta* tablets. Collegium Pharmaceutical. Stoughton, MA 02072. October 2019.
34. National Pain Centre. Opioid Manager. Switching Opioids. http://nationalpaincentre.mcmaster.ca/opioidmanager/documents/opioid_manager_switching_opioids.pdf. (Accessed November 21, 2019).
35. Clinical Resource, *Methadone for pain: Focus on Safety*. *Pharmacist's Letter/Prescriber's Letter*. April 2016.
36. E-CPS [Internet]. Ottawa (ON): Canadian Pharmacists Association; c2019. *Durela* monograph [July 2018]. http://www.e-therapeutics.ca. (Accessed November 22, 2019).
37. Product monograph for *Ultram*. Janssen. Toronto, ON M3C 1L9. July 2019.

More. . .

38. Product monograph for *Nucynta IR*. Paladin Labs. Montreal, QC H4M 2P2. May 2018.
39. Centers for Disease Control and Prevention (CDC). Vital signs: risk for overdose from methadone used for pain relief-United States, 1999-2010. *MMWR Morb Mortal Wkly Rep* 2012;61:493-7.
40. Helm S, Trescot AM, Colson J, et al. Opioid antagonists, partial agonists, and agonists/antagonists: the role of office-based detoxification. *Pain Physician* 2008;11:225-35.
41. Washington State Agency Medical Directors Group. Interagency guideline on prescribing opioids for pain. 3rd edition, June 2015. http://www.agencymeddirectors.wa.gov/Files/2015AMDGOpioidGuideline.pdf. (Accessed November 21, 2019).
42. Product information for *Roxicodone*. Mallinckrodt Brand Pharmaceuticals. Hazelwood, MO 63042. November 2019.
43. Product monograph for *Oxy IR*. Purdue Pharma. Pickering, ON L1W 3W8. February 2018.
44. Product information for *Opana*. Endo Pharmaceuticals. Malvern, PA 19355. October 2019.
45. Product information for *Norco*. Allergan USA. Madison, NJ 07940. October 2019.
46. Product information for codeine sulfate tablets. Lannett Company. Philadelphia, PA 19136. November 2019.
47. Product monograph for *Butrans*. Purdue Pharma. Pickering, ON. L1W 3W8. March 2018.
48. Busse J, ed. The 2017 Canadian guideline for opioids for chronic non-cancer pain. http://nationalpaincentre.mcmaster.ca/documents/Opioid%20GL%20for%20CMAJ_01may2017.pdf. (Accessed November 21, 2019).
49. Product monograph for *Codeine Contin*. Purdue Pharma. Pickering, ON L1W 3W8. September 2018.
50. Clinical Pharmacology powered by ClinicalKey, Tampa, FL: Elsevier. 2019. http://www.clinicalkey.com. (Accessed November 21, 2019).
51. Product information for *MorphaBond ER*. Daiichi Sankyo. Basking Ridge, NJ 07920. October 2019.
52. Ballantyne JC, Mao J. Opioid therapy for chronic pain. *N Engl J Med* 2003;349:1943-53.
53. Product information for *Arymo ER*. Zyla Life Sciences US. Wayne, PA 19087. October 2019.
54. Induru RR, Lagman RL. Managing cancer pain: frequently asked questions. *Cleve Clin J Med* 2011;78:449-64.
55. Carbonara GM. Opioids in patients with renal or hepatic dysfunction. *Practical Pain Management.* May 1, 2008. http://www.practicalpainmanagement.com/treatments/pharmacological/opioids/opioids-patients-renal-hepatic-dysfunction?page=0,0. (Accessed November 22, 2019).
56. Skaer TL. Transdermal opioids for cancer pain. *Health Qual Life Outcomes* 2006;4:24.
57. Product monograph for *MS Contin*. Purdue Pharma. Pickering, ON L1W 3W8. March 2018.
58. Product information for *Zohydro ER*. Persion. Morristown, NJ 07960. October 2019.
59. Product information for oxymorphone extended-release tablet. Amneal Pharmaceuticals. Bridgewater, NJ 08807. June 2019.
60. Product information for *Butrans*. Purdue Pharma. Stamford, CT 06901-3431. October 2019.
61. Product information for *Conzip*. Vertical Pharmaceuticals. Bridgewater, NJ 08807. October 2019.
62. Product information for *Hysingla ER*. Purdue Pharma L.P. Stamford, CT 06901. October 2019.
63. Product information for *Duragesic*. Janssen Pharmaceuticals, Inc. Titusville, NJ 08560. October 2019.
64. Product monograph for *PMS-fentanyl MTX*. Pharmascience. Montreal, QC H4P 2T4. July 2019.
65. Product information for fentanyl transdermal patch. Alvogen. Pine Brook, NJ 07058. November 2019.
66. Product information for *Xtampza ER*. Patheon Pharmaceuticals. Cincinnati, OH 45237. October 2019.
67. Product information for *Belbuca*. BioDelivery Sciences International. Raleigh, NC 27612. October 2019.
68. Product information for *Apadaz*. KVK-Tech. Newtown, PA 18940. June 2019.
69. Chu R, Ciani A, Raouf M. Opioid agonists, partial agonists, antagonists: oh my!. *Pharmacy Times*. January 6, 2018. http://www.pharmacytimes.com/contributor/jeffrey-fudin/2018/01/opioid-agonists-partial-agonists-antagonists-oh-my. (Accessed November 22, 2019).
70. Product information for morphine sulfate tablets. West-ward Pharmaceuticals. Eatontown, NJ 07714. October 2019.
71. Product information for *Olinvyk*. Trevena. Chesterbrook, PA. November 2020.

Cite this document as follows: **Clinical Resource,** ***Equianalgesic Dosing of Opioids for Pain Management. Pharmacist's Letter/Prescriber's Letter.*** **January 2020.**

More. . .

trc pharmacist's letter ™ trc prescriber's letter ™

Evidence and Recommendations You Can Trust…

trc pharmacy technician's letter ™

TEL (209) 472-2240 ~ FAX (209) 472-2249

Subscribers to the *Letter* can get clinical resources, like this one,
on any topic covered in any issue by going to pharmacist.therapeuticresearch.com ~
prescriber.therapeuticresearch.com ~ pharmacytech.therapeuticresearch.com