Part 2: Pain and Symptom Management
Pain Management

Effective Date: February 22, 2017

Key Recommendations

- Follow opioid management principles.
- Utilize adjuvant medication for pain-specific management.

Assessment

Signs and Symptoms

Use the OPQRSTUV mnemonic to assess pain:

Table 1: Pain Assessment using Acronym O,P,Q,R,S,T,U,V

O	Onset	e.g., When did it start? Acute or gradual onset? Pattern since onset?
P	Provoking / palliating	What brings it on? What makes it better or worse, e.g., rest, meds?
Q	Quality	Identify neuropathic pain (burning, tingling, numb, itchy, etc.)
R	Region / radiation	Primary location(s) of pain, radiation pattern(s)
S	Severity	Use verbal descriptors and/or 1–10 scale
T	Treatment	Current and past treatment; side effects
U	Understanding	Meaning of the pain to the sufferer, "total pain"
V	Values	Goals and expectations of management for this symptom

Physical Exam

Look for signs of tumour progression, trauma, or neuropathic etiology: hypo- or hyper-esthesia, allodynia (pain from stimuli not normally painful).

Management

- Continuous pain requires continuous analgesia; prescribe regular dose versus prn.
- Start with regular short-acting opioids and titrate to effective dose over a few days before switching to slow release opioids.
- Once pain control is achieved, long-acting (q12h oral or q3days transdermal) agents are preferred to regular short-acting oral preparations for better compliance and sleep.
- Always provide appropriate breakthrough doses of opioid medication, ~10% of total daily dose dosed q1h prn.
- Incident pain (e.g., provoked by activity) may require up to 20% of the total daily dose, given prior to the precipitating activity.
- Use appropriate adjuvant analgesics at any step (e.g., NSAIDs, corticosteroids).
- Record patient medications consistently.

1. Opioid Selection

Issue	Preferred Opioid Medication	Avoid
Difficult constipation	fentanyl transdermal or methadone[a]	
Renal failure	fentanyl transdermal or methadone[a]	morphine[b], codeine, meperidine[c]
Compliance and convenience	time release formulations (e.g., morphine, hydromorphone, oxycodone)	
Neuropathic pain	oxycodone or methadone[d] (anecdotal evidence)	
Opioid naïve	low dose morphine, hydromorphone or oxycodone	fentanyl transdermal patch (risk of delayed absorption and overdose potential), sufentanil
Injection route (e.g., SC)	morphine, hydromorphone, second line: methadone by buccal or rectal route[e]	oxycodone (injectable) is not available in Canada
Patient is at extreme risk of respiratory depression	Buprenorphine transdermal patch[f]	

[a] Fentanyl is primarily (75%) cleared as inactive metabolites by the kidney and methadone is cleared hepatically.
[b] Morphine is the ***least*** preferred in renal failure because of renally cleared active metabolites.
[c] Meperidine (Demerol®) should not be used for the treatment of chronic pain.
[d] If a patient in your practice is started on methadone by a palliative care physician, in order to renew prescriptions, it is possible to obtain individual patient methadone prescribing authorization through the College of Physicians and Surgeons of British Columbia.
[e] When changing from oral route to buccal or rectal route, use 1:1 dosing with the oral 10mg/ml concentrated solution, and modify if needed depending on effect. If larger doses are required, a more concentrated solution may be compounded, up to a maximum of 40mg/ml.* Island Health hospital pharmacy will concentrate to 50mg/ml.
[f] Not covered by BC Pharmacare.

2. Opioid Switching ("rotation")

- Switch to another opioid when inadequate analgesia is obtained despite dose-limiting adverse effects (AEs). This allows for clearance of opioid metabolites and possibly more effective opioid receptor agonist profile from the new drug.
- Switch to an equianalgesic dose of the second opioid, bearing in mind that published ratios are only a guide and that reassessment and dose modification are required.
- When switching because of AEs (e.g., delirium or generalized hyperalgesia), determine the equianalgesic dose and reduce this dose by 25%. Observe closely, allowing for onset of the new and wearing-off of the previous drug.
- Refer to *Appendix A – Equianalgesic Conversion for Morphine*.

*Hawley, Wing, and Nayar, Methadone for Pain: What to Do When the Oral Route Is Not Available. J Pain Symptom Manage. 2015 Jun 49(6):e4-6.

3. Addressing Adverse Effects from Opioids

If the AE is not managed symptomatically and persists for more than one week, switch to another opioid.

Adverse Effect	Intervention
Constipation	• Stepwise escalation of regular oral stimulant or osmotic laxative on opioid initiation. • Consider methylnaltrexone* for refractory cases. • See *Palliative Care Part 2: Pain and Symptom Management – Constipation*.
Nausea	• Resolves after ~ 1 week. Consider metoclopramide[2] first line; avoid dimenhydrinate (Gravol®).
Sedation	• Stimulants may be helpful if sedation persists, e.g., methylphenidate, dextroamphetamine, or modafanil.
Myoclonus	• May respond to benzodiazepines, but may be a sign of opioid toxicity requiring hydration, opioid dose reduction or rotation.
Delirium	• Assess for other causes, e.g., hypercalcemia, UTI.
Pruritus, sweating	• Try opioid rotation.

4. Adjuvant Analgesics

- Select based on type of pain and AE profile. Optimize dosing of one drug before trying another. Discontinue adjuvant drug if ineffective.

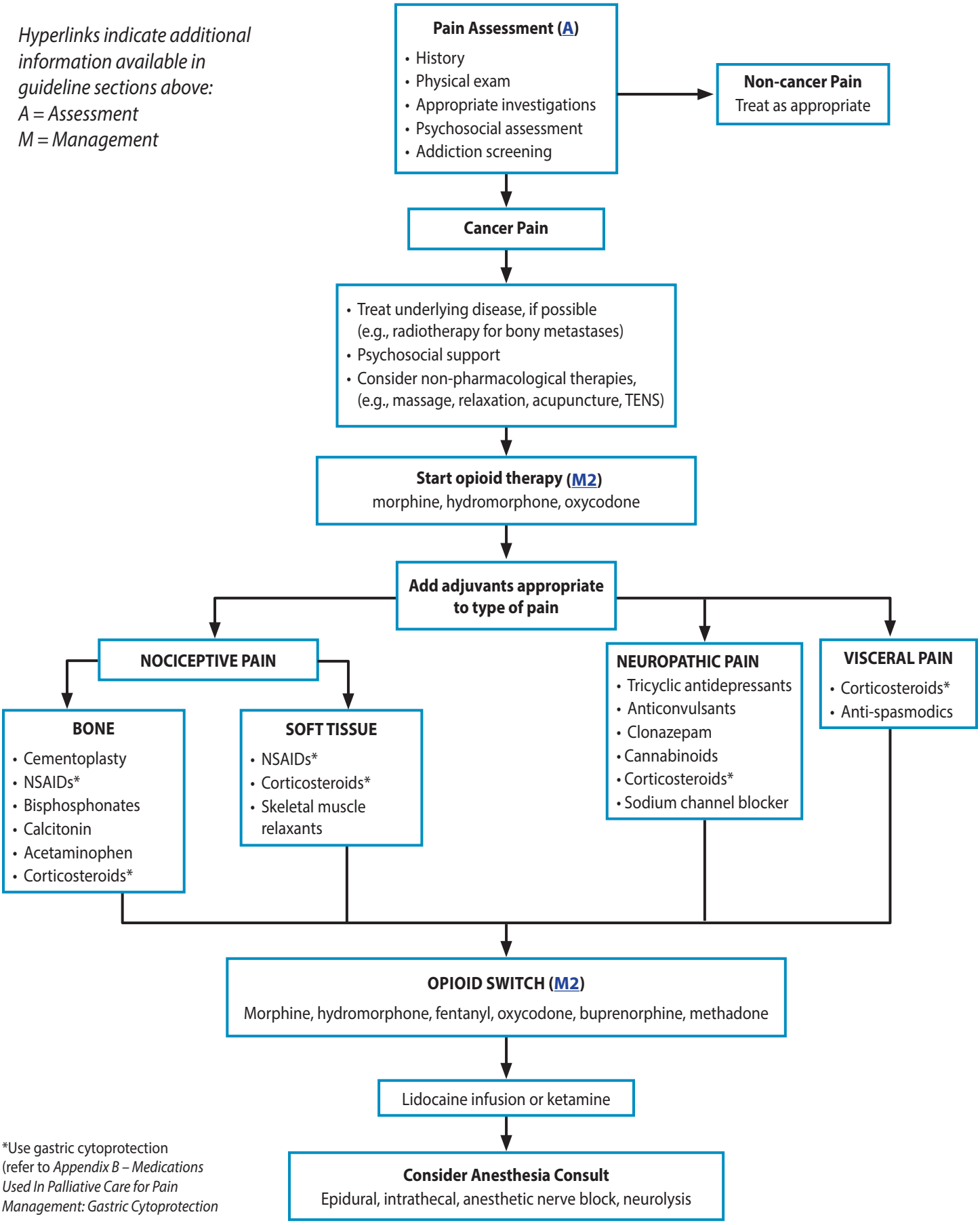
5. Severe opioid-resistant cancer pain

- Consult a palliative care specialist for advice.

* *Cancer, GI malignancy, GI ulcer, Ogilvie's syndrome and concomitant use of certain medications (e.g. NSAIDs, steroids, and bevacizumab) may increase the risk of GI perforation in patients receiving methylnaltrexone. [Health Canada MedEffect Notice: http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2010/14087a-eng.php]*

Cancer Pain Management Algorithm

Hyperlinks indicate additional information available in guideline sections above:
A = Assessment
M = Management



*Use gastric cytoprotection (refer to *Appendix B – Medications Used In Palliative Care for Pain Management: Gastric Cytoprotection*

Resources

Abbreviations

AEs	adverse effects
GI	gastrointestinal
NSAIDs	non-steroidal anti-inflammatory drugs
SC	subcutaneous
TENS	transcutaneous electrical nerve stimulation
UTI	urinary tract infection

Appendices

Appendix A – Equianalgesic Conversion for Morphine and Fentanyl Transdermal Patch
Appendix B – Medications Used in Palliative Care for Pain Management

For additional guidance on pain management, see also the **BC Inter-professional Palliative Symptom Management Guidelines** produced by the BC Centre for Palliative Care, available at: www.bc-cpc.ca/cpc/symptom-management-guidelines/

Appendix A: Equianalgesic Conversion for Morphine

Morphine Equivalence Table (for chronic dosing)			
DRUG	**SC/IV (mg)**	**PO (mg)**	**COMMENTS**
morphine	10	30[A]	
codeine	120 (SC only)	200	metabolized to morphine
fentanyl patch	see table below – useful when PO / PR routes not an option		
fentanyl	0.1 (100 mcg)	NA	usually dosed prn less than 1 hour effect
hydromorphone	2	4	
oxycodone	not available in Canada	20	
sufentanil	0.01 – 0.04 (10 – 40 mcg)	NA	usually dosed prn less than 1 hour effect

[A] Health Canada recommends using a conversion of 10 mg SC/IV morphine = 30 mg PO (1:3) Refer to http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2010/14603a-eng.php

Fentanyl Transdermal Patch Equianalgesic Conversion[A, B, C, D]			
Morphine PO (mg/day)	**Hydromorphone PO (mg/day)**	**Oxycodone PO (mg/day)**	**Fentanyl Patch (mcg/hr)**
45 – 59	6 – 11	30 – 44	12[E]
60 – 134	12 – 26	45 – 89	25
135 – 179	27 – 35	90 – 119	37
180 – 224	36 – 44	120 – 149	50
225 – 269	45 – 53	150 – 179	62
270 – 314	54 – 62	180 – 209	75
315 – 359	63 – 71	210 – 239	87
360 – 404	72 – 80	240 – 269	100
405 – 449	81 – 89	270 – 299	112
450 – 494	90 – 98	300 – 329	125
495 – 539	99 – 107	330 – 359	137
540 – 584	108 – 116	360 – 389	150
585 – 629	117 – 125	390 – 419	162
630 – 674	126 – 134	420 – 449	175
675 – 719	135 – 143	450 – 479	187
720 – 764	144 – 152	480 – 509	200
765 – 809	153 – 161	510 – 539	212
810 – 854	162 – 170	540 – 569	225
855 – 899	171 – 179	570 – 599	237
900 – 944	180 – 188	600 – 629	250
945 – 989	189 – 197	630 – 659	262
990 – 1034	198 – 206	660 – 689	275
1035 – 1079	207 – 215	690 – 719	287
1080 – 1124	216 – 224	720 – 749	300

[A] Adapted from Fraser health Hospice Palliative Care Program Principles of Opioid Management, Appendix A – Fentanyl Transdermal. September 10, 2015 [cited April 6, 2016]. Available from: http://www.fraserhealth.ca/media/HPC_SymptomGuidelines_Opioid.pdf

[B] Initiation of fentanyl in patients who are opioid-naïve is contraindicated at any dose.

[C] The conversion table is unidirectional only and should **ONLY** be used to convert adult patients from their current oral or parenteral opioid analgesic to the approximate fentanyl transdermal patch for use in chronic pain.

[D] Do not convert patients previously on codeine or tramadol to fentanyl transdermal patch due to significant inter-patient variability in metabolism, safety, and effectiveness of these drugs.

[E] Health Canada recommends that 12 mcg/hr patches be used for dose titration or adjustments, not as the initiating dose.

Approximate Breakthrough Doses Recommended for Fentanyl Transdermal Patch[A] Breakthrough should be 10% of the total daily opioid dose			
Patch Strength mcg/hour	**Oral Morphine Immediate Release (mg)**	**Oral Hydromorphone Immediate Release (mg)**	**Oral Oxycodone Immediate Release (mg)**
12	5	1	2.5
25	10	2	5
37	15	3	10
50	20	4	12.5
62	25	5	15
75	25	5	17.5
87	30	6	20
100	35	7	25
112	40	8	27.5
125	45	9	30
137	50	10	32.5
150	55	11	35
162	60	12	40
175	65	13	42.5
187	70	14	45
200	70	14	47.5
212	75	15	50
225	80	16	55
237	85	17	57.5
250	90	18	60
262	95	19	62.5
275	100	20	65
287	105	21	70
300	110	22	72.5

[A] Adapted from Fraser Health Hospice Palliative Care Program Principles of Opioid Management, Appendix A – Fentanyl Transdermal. September 10, 2015 [cited April 6, 2016]. Available from: http://www.fraserhealth.ca/media/HPC_SymptomGuidelines_Opioid.pdf

Appendix B: Medications Used in Palliative Care for Pain Management

Tailor dose to each patient; those who are elderly, cachectic, debilitated or with renal or hepatic dysfunction may require reduced dosages; consult most current product monograph for this information: http://www.hc-sc.gc.ca/dhp-mps/prodpharma/databasdon/index-eng.php

ACETAMINOPHEN, NSAIDs						
Generic Name	Trade Name	Available Dosage Forms	Standard Adult Dose[A]	Drug Plan Coverage[B]		Approx. cost per 30 days[C]
				Palliative Care	Fair PharmaCare	
acetaminophen	Tylenol®, Panadol®, G (OTC)	**IR tabs, caplet:** 325, 500 mg	325 to 650 mg PO q4-6 h (max: 4000 mg daily)	Yes, LCA	No	$2–5 (G) $10–30
		SR tabs: 650 mg	650 to 1300 mg PO q8h (max: 4000 mg daily)	Yes	No	$11–22
		Supps: 325, 650 mg	650 mg PR q4-6h (max: 4000 mg daily)	Yes	No	$103–155 (G)
celecoxib	Celebrex®, G	**Caps:** 100, 200 mg	100 to 200 mg PO bid	Yes, LCA	Special Authority, LCA	$9–18 (G) $46–91
diclofenac	Voltaren®, G	**IR tabs:** 25, 50 mg	75 mg daily in 3 divided doses (max: 100 mg daily)	Yes, LCA	Yes, RDP	$5–13 (G) $69
		SR tabs: 75, 100 mg	75 to 100 mg PO once daily (max: 100 mg daily)	Yes, LCA	Yes, RDP	$8–13 (G) $39–56
		Supps: 50, 100 mg	50 mg PR bid (max: 100 mg daily)	Yes, LCA	Yes, LCA	$28 (G) $104
ibuprofen	Advil®, Motrin®, G	**Tabs:** 200[D], 300[D], 400[D], 600 mg	200 to 400 mg PO q4h (max: 2400 mg per day)	Yes, LCA	Yes, LCA	$16–20 (G) $19–35
indomethacin	G	**Caps:** 25, 50 mg	25 to 50 mg PO tid	No	Yes, RDP	$8–14 (G)
		Supps: 50, 100 mg	50 to 100 mg PR bid	No	Yes	$57 (G)
ketorolac	Toradol®, G	**Tabs:** 10 mg	10 mg PO qid (max duration: 5 days)	No	No	$10 (G) $15 per 5 days
		Inj: 10, 30 mg per mL	10 to 30 mg IM/IV[E]/SC[E] q6h (max duration: 2 days)	No	No	$6–18 (G) $11–32 per 2 days
naproxen	Naprosyn®, G	**IR tabs:** 250, 375, 500 mg	250 to 500 mg PO bid	Yes, LCA	Yes, LCA	$7–14 (G)
		EC tabs: 250, 375, 500 mg		Yes, RDP	Yes, RDP	$7–14 (G) $71
		SR tab: 750 mg	750 mg PO daily	Yes, RDP	Yes, RDP	$48
		Supps: 500 mg	500 mg PR bid	Yes, LCA	Yes, LCA	$68 (G)
naproxen sodium	Aleve®, G (OTC)	**Tabs:** 220 mg	220 mg PO bid	No	No	$4 (G) $8

Abbreviations: caps capsules; **EC** enteric coated; **G** generics; **IM** intravenous; **Inj** injection; **IR** Immediate Release; **IV** intravenous; **LCA** subject to Low Cost Alternative Program; **max** maximum dose; **PO** by mouth; **PR** per rectum; **OTC** over the counter (non-prescription); **RDP** subject to reference drug program; **SR** slow release; **SC** subcutaneous; **supps** suppositories (rectal); **tabs** tablets

[A] Preferred route of administration for acetaminophen and NSAIDs is oral or rectal.
[B] PharmaCare coverage as of October 2016 (subject to revision). Obtain current coverage, eligibility, and coverage information from the online BC PharmaCare Formulary Search page at pharmacareformularysearch.gov.bc.ca
[C] Cost as of October 2016 and does not include retail markups or pharmacy fees. Generic and brand name cost separated as indicated by (G).
[D] Available OTC
[E] This route of administration is used in practice, but not approved for marketing for this indication by Health Canada.

OPIOIDS						
Generic Name	Trade Name	Available Dosage Forms	Standard Adult Dose[A]	Drug Plan Coverage[B]		Approx. cost per 30 days[C]
				Palliative Care	Fair PharmaCare	
fentanyl[D]	Duragesic MAT®, G	**Patch:** 12, 25, 37, 50, 75, 100 mcg per hour	12 to 100 mcg/hour applied to skin every 72 hours	Yes, LCA	Special Authority, LCA	$24–130 (G) $71–552
	G	**Inj:** 50 mcg per mL	25 to 100 mcg sublingual* per dose PRN Patient must be alert and able to hold liquid under tongue for 3–5 minutes.	Yes	No	$3–6 (G) per dose
	Abstral®, Fentora®	**Sublingual tablets:** 100, 200, 300, 400, 600, 800 mcg	Titrate using the following doses 100, 200, 300, 400, 600, and 800 mcg with at least 2 hours between doses until adequate analgesia with tolerable side-effects is obtained within 30 minutes. (max: 800 mcg per dose)	No	No	$12–31 per single tablet dose
hydromorphone	Dilaudid®, G	**IR tabs:** 1, 2, 4, 8 mg	2 to 8 mg PO q4h	Yes, LCA	Yes, LCA	$18–68 (G) $26–65
	Hydromorph Contin®	**SR caps:** 3, 4.5, 6, 9, 12, 18, 24, 30 mg	3 to 30 mg PO q12h	Yes	Special authority	$47–272
	Jurnista®	**SR tabs:** 4, 8, 16, 32 mg	4 to 64 mg PO once daily	Yes	Special authority	$43–688
	G	**Inj:** 2, 10, 20, 50, 100 mg per mL	2 to 10 mg SC q4h	Yes, LCA	Yes, LCA	$381–1900 (G)
morphine	MS-IR®, Statex®	**IR tabs:** 5, 10, 20, 25, 30, 50 mg	5 to 60 mg PO q4h	Yes, LCA	Yes, LCA	$21–88
	MS Contin®, G	**SR tabs:** 15, 20, 30, 60, 100, 200 mg	15 to 200 mg PO q12h	Yes, LCA	Yes, LCA	$9–71 (G) $46–351
	M-Eslon® E	**SR caps:** 10, 15, 30, 60, 100, 200 mg	10 to 200 mg PO q12h	Yes, LCA	Yes, LCA	$17–71
	Kadian®	**SR tabs:** 10, 20, 50, 100 mg	20 to 400 mg once daily	Yes	Yes	$21–319
	G	**Inj:** 1, 2, 5, 10,15, 25, 50 mg per mL	2 to 25 mg SC q4h	Yes	Yes	$46–291
methadone	Metadol®	**Tabs:** 1, 5, 10, 25 mg	varies widely	Yes	No	$60–343
	Methadose®	**Oral solution:** 10 mg per mL	varies widely	Yes	Yes	$8–58
	Compounded	**Oral solution:** up to 50 mg per mL	buccal or rectal use only dosage varies widely	Special authorization	Special authorization	$30–60
oxycodone	Oxy.IR®, Supeudol®, G	**IR tabs:** 5, 10, 20 mg	5 to 20 mg PO q4h	Yes, LCA	Yes, LCA	$25–36 (G) $52–135
	OxyNEO® (tamper resistant formulation)	**SR tabs:** 10, 15, 20, 30, 40, 60, 80 mg	10 to 80 mg PO q12h	Yes	No	$59–284
	G (not tamper resistant)	**SR tabs:** 5, 10, 15, 20, 30, 40, 60, 80 mg	5 to 80 mg PO q12h	No	No	$20–137

OPIOIDS						
Generic Name	Trade Name	Available Dosage Forms	Standard Adult Dose[A]	Drug Plan Coverage[B]		Approx. cost per 30 days[C]
				Palliative Care	Fair PharmaCare	
sufentanil[F]	G	**Inj:** 50 mcg per mL	For incident pain: 12.5 mcg sublingualG /dose PRN; incremental doses titrated q2h PRN up to 75 mcg Patient must be alert and able to hold liquid under tongue for 3–5 minutes.	Yes	Yes	$15 (G) per dose
buprenorphine	BuTrans®	5, 10, 20 mcg per hour	5 to 20 mcg/hour applied to skin every 7 days	No	No	$55–182

Abbreviations: caps capsules; **EC** enteric coated; **G** generics; **IM** intravenous; **Inj** injection; **IR** Immediate Release; **IV** intravenous; **LCA** subject to Low Cost Alternative Program; **max** maximum dose; **PO** by mouth; **PR** per rectum; **OTC** over the counter (non-prescription); **RDP** subject to reference drug program; **SR** slow release; **SC** subcutaneous; **supps** suppositories (rectal); **tabs** tablets

[A] Dosage requirements may go beyond range shown in table i.e. there is no maximum dose for opioids, unless limited by side effects or toxicity.

[B] PharmaCare coverage as of October 2016 (subject to revision). Obtain current coverage, eligibility, and coverage information from the online BC PharmaCare Formulary Search page at pharmacareformularysearch.gov.bc.ca

[C] In 2018, Health Canada removed the requirement for an exemption to the federal restriction on methadone prescribing. The College of Physicians and Surgeons of British Columbia has released appropriate guidance on prescribing methadone, a Methadone for Analgesia Guidelines, and a new Prescribing Methadone practice standard. Physicians are expected to acquire the relevant education and training to prescribe methadone for analgesia. This can be demonstrated through completion of the Canadian Virtual Hospice Methadone for Pain course (methadone4pain.ca) and/or by reading the Methadone for Analgesia guideline.

[D] Fentanyl transdermal patches should only to be initiated in patients using at least 60 mg morphine equivalents per day for at least one week.

[E] M-Eslon® capsules may be open and the contents sprinkled over soft food (e.g., pudding or apple sauce)

[F] Sufentanil is a potent opioid; initiation by a primary care provider for opiate naïve patients is not recommended, instead refer for Palliative Care Consult. Sublingual sufentanil may be considered for patients receiving at least 60 mg PO morphine equivalents over the last 7 days. Refer to Fraser health Hospice Palliative Care Program Principles of Opioid Management, http://www.fraserhealth.ca/media/HPC_SymptomGuidelines_Opioid.pdf

[G] This route of administration is used in practice, but not approved for marketing for this indication by Health Canada

NEUROPATHIC PAIN ADJUVANTS						
Generic Name	Trade Name	Available Dosage Forms	Standard Adult Dose	Drug Plan Coverage[A]		Approx. cost per 30 days[B]
				Palliative Care	Fair PharmaCare	
cannabidiol, D-9-T	Sativex®	**Buccal spray:** single combination product strength	1 spray buccally/sublingual BID, increase by 1 spray per day up to 8 to 12 sprays per day	No	No	$588–882
clonazepam[C]	Rivotril®, G	**Tabs:** 0.25, 0.5, 1, 2 mg	0.5 mg PO at bedtime, up to 2 mg qid	Yes, LCA	Yes, LCA	$2–11 (G) $8–52
desipramine[C]	G	**Tabs:** 10, 25, 50, 75, 100 mg	10 to 25 mg PO at bedtime; increase q3-7 days up to 150 mg per day	Yes, LCA	Yes, LCA	$12–59 (G)
dexamethasone[C]	G	**Tabs:** 0.5, 0.75, 2, 4 mg	2 mg PO/SCE daily to 8 mg bid (am & noon)	Yes, LCA	Yes, LCA	$16–124 (G)
		Inj: 4, 10 mg per mL		Yes, LCA	Yes, LCA	$6–22 (G)
duloxetine[C]	Cymbalta®	**Caps:** 30, 60 mg	30 to 60 mg PO daily	No	No	$62–126
gabapentin[C]	Neurontin®, G	**Tabs:** 100, 300, 400, 600, 800 mg	300 to 1200 mg PO tid	Yes, LCA	Yes, LCA	$18–63 (G) $44–380
nabalone[C]	Cesamet®, G	**Caps:** 0.25, 0.5, 1 mg	0.5 mg PO at bedtime, increase q7 days up to 1 mg bid	No	Yes, LCA	$25–101 (G) $108–403
nortriptyline[C]	Aventyl®, G	**Caps:** 10, 25 mg	10 to 150 mg PO at bedtime	Yes, LCA	Yes, LCA	$4–43 (G) $7–87
pregabalin[C]	Lyrica®, G	**Caps:** 25, 50, 75, 150, 225, 300 mg	75 mg PO bid, increase q7 days up to 300 mg bid	No	No, LCA	$81–112 (G) $112–154
topiramate[C]	Topamax®, G	**Tabs:** 25, 100, 200 mg	25 mg PO daily, increase q7 days up to 200 mg bid	No	Yes, LCA	$8–46 (G) $43–243
		Sprinkle caps: 15, 25 mg		No	Yes	$42–675
valproic acid[C]	Depakene®, G	**Caps:** 250, 500 mg	250 mg PO at bedtime increase q3 days up to 500 mg tid	Yes, LCA	Yes, LCA	$9–54 (G) $19–113

Abbreviations: caps capsule; **G** generics; **Inj** injection; **LCA** subject to Low Cost Alternative Program; **PO** by mouth; **SC** subcutaneous; **tabs** tablets; **D-9-T** Delta-9-Tetrahydrocannabinol

[A] PharmaCare coverage as of October 2016 (subject to revision). Obtain current coverage, eligibility, and coverage information from the online BC PharmaCare Formulary Search page at pharmacareformularysearch.gov.bc.ca

[B] Cost as of October 2016 and does not include retail markups or pharmacy fees. Generic and brand name cost separated as indicated by (G).

[C] This indication (i.e. neuropathic pain) not approved by Health Canada.

[D] This route of administration is used in practice, but not approved by Health Canada.

Generic Name	Trade Name	Available Dosage Forms	Standard Adult Dose	Drug Plan Coverage[A]		Approx. cost per 30 days[B]
				Palliative Care	Fair PharmaCare	
ANTISPASMODICS						
belladonna & opium	G	**Supps:** Belladonna 15 mg, Opium 65 mg	1 supp PR qid	Yes	Yes	$620 (G)
hyoscine butylbromide	Buscopan®	**Tabs:** 10 mg	10 mg PO qid up to 60 mg per day	Yes	Yes	$45–68
	Buscopan®, G	**Inj:** 20 mg per mL	10 to 20 mg SC q6h (max: 100 mg per day)	Yes	Yes, LCA	$697 (G) $732
SKELETAL MUSCLE RELAXANTS						
baclofen	Lioresal®, G	Tabs: 10, 20 mg	5 mg PO bid increase q3 days up to 20 mg tid	Yes, LCA	Yes, LCA	$5–30 (G) $27–157
cyclobenzaprine	G	Tabs: 10 mg	5 mg PO tid to 10 mg qid	No	Yes, LCA	$18–48 (G)
tizanidine	G	Tabs: 4 mg	2 mg PO daily increase q3-4 days up to 4 to 12 mg tid	No	Special Authority, LCA	$11–201 (G)

Abbreviations: G generics; **inj** injection; **LCA** subject to Low Cost Alternative Program; **max** maximum dose; **PO** by mouth; **SC** subcutaneous; **supps** suppositories (rectal); **tabs** tablets

[A] PharmaCare coverage as of October 2016 (subject to revision). Obtain current coverage, eligibility, and coverage information from the online BC PharmaCare Formulary Search page at pharmacareformularysearch.gov.bc.ca

[B] Cost as of October 2016 and does not include retail markups or pharmacy fees. Generic and brand name cost separated as indicated by (G).

GASTRIC CYPROTECTION and DYSPEPSIA						
Generic Name	Trade Name	Available Dosage Forms	Standard Adult Dose	Drug Plan Coverage[A]		Approx. cost per 30 days[B]
				Palliative Care	Fair PharmaCare	
Pantoprazole magnesium	Tecta®, G	**EC Tabs:** 40 mg	40 mg PO once daily	Yes, LCA	Special Authority, RDP, LCA	$6 (G) $24
rabeprazole	Pariet®, G	**EC Tabs:** 10, 20 mg	10 to 20 mg PO once daily	Yes, LCA	Special Authority, RDP, LCA	$4–8 (G) $28–56
pantoprazole	Pantoloc®, G	**EC Tabs:** 20, 40 mg	40 mg PO once daily	Yes, LCA	Special Authority, RDP, LCA	$12(G)
		Inj: 40 mg	40 mg IV once daily	No	No	$355 (G)
ranitidine	Zantac®, G	**Tabs:** 75[C], 150[C], 300	150 mg PO bid or 300 mg PO at bedtime	Yes, LCA	Yes, RDP, LCA	$12 (G) $12
		Inj: 25 mg per mL	50 mg SC[D] q8H	Yes, LCA	Yes, LCA	$272 (G) $276
lansoprazole	Prevacid®, G	**DR Caps:** 15, 30 mg	15 to 30 mg PO once daily	No	Special Authority, RDP, LCA	$13 (G) $65
		Fas Tabs: 15, 30 mg				$65
omeprazole	Losec®, G	**DR Caps:** 10, 20 mg	20 mg PO once daily	No	Special Authority, RDP, LCA	$13–26 (G) $37
Omeprazole magnesium	Losec®, G	**DR Tabs:** 10, 20 mg	20 mg PO once daily	No	Special Authority, RDP, LCA	$13–35 (G) $61–77
esomeprazole	Nexium®, G	**DR Tabs:** 20, 40 mg	20 to 40 mg PO once daily	No	Special Authority, RDP, LCA	$16 (G) $71
		DR Granules: 10 mg		No	No	$141–285
misoprostol	G	**Tabs:** 100, 200 mcg	100 to 200 mcg PO qid	No	Yes, LCA	$34–57 (G)

Abbreviations: caps capsule; **DR** delayed release; **EC** enteric coated; **FasTabs** delayed-release tablets; **G** generics; **Inj** injection; **IV** intravenous; **LCA** subject to Low Cost Alternative Program; **PO** by mouth; **RDP** subject to Reference Drug Program; **SC** subcutaneous; **tabs** tablets

[A] PharmaCare coverage as of October 2016 (subject to revision). Obtain current coverage, eligibility, and coverage information from the online BC PharmaCare Formulary Search page at pharmacareformularysearch.gov.bc.ca

[B] Cost as of October 2016 and does not include retail markups or pharmacy fees. Generic and brand name cost separated as indicated by (G).

[C] Available OTC

[D] This route of administration is used in practice, but not approved for marketing for this indication by Health Canada

BONE PAIN ADJUVANTS for Nociceptive bone pain (without hypercalcemia) For treating malignancy related hypercalcemia see www.bccancer.bc.ca/HPI/ChemotherapyProtocols/SupportiveCare/default.htm						
Generic Name	Trade Name	Available Dosage Forms	Standard Adult Dose	Drug Plan Coverage[A]		Approx. cost per 30 days[B]
				Palliative Care	Fair PharmaCare	
calcitonin	Calcimar®	**Inj:** 200 units per mL (2 mL multi-dose vial)	***Nociceptive bone pain:*** 50 units SC at bedtime up to 200 units bid	No	Yes	$232-3717
clodronate	Bonefos®, Clasteon®	**Caps:** 400 mg	800 mg PO bid or 1600 mg PO daily (max: 3200 mg per day)	Yes, LCA	Yes, LCA	$157 (Clasteon®) $254 (Bonefos®)
denosumab	Xgeva®	**Inj:** 120 mg per 1.7 mL	120 mg SC once every 4 weeks	Yes	No	$360
pamidronate	Aredia®, G	**Inj:** 90 mg per 10 mL	90 mg IV monthly	Yes, LCA	Special Authority, LCA	$281 (G) $541
zoledronic acid	Zometa®, G	**Inj:** 4 mg per 5 mL	4 mg IV monthly	Yes, LCA	No	$314 (G) $616

Abbreviations: caps capsule; **G** generics; **Inj** injection; **IV** intravenous; **LCA** subject to Low Cost Alternative Program; **max** maximum dose; **PO** by mouth; **SC** subcutaneous

[A] PharmaCare coverage as of October 2016 (subject to revision). Obtain current coverage, eligibility, and coverage information from the PharmaCare Benefits Lookup website at https://pcbl.hlth.gov.bc.ca/PharmaCare/benefitslookup/

[B] Cost as of October 2016 and does not include retail markups or pharmacy fees. Generic and brand name cost separated as indicated by (G).

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