Supplementary Table: Palliative Care Opioid Safety Expert Consensus Recommendations

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
Domain 1 ***General principles related to opioid prescribing and opioid use disorders in palliative care***	1	**Opioids are essential medications for symptom management**	1	20 (87)	23	✘	2.6
	2	**Everyone has the right to adequate pain management**	1	23 (99)	23	✘	2.6
	3	**Opioids should only be prescribed by palliative care specialists**	1	0 (0) *Disagreement level: 22 (96)*	23	✘	2.6
	4	**Opioid safety does not need to be addressed for patients with prognoses of days to weeks**	1	0 (0) *Disagreement level: 23 (100)*	23	✘	2
	5	**Opioid safety requires interdisciplinary collaboration (i.e., doctors, nurses, pharmacists)**	1	23 (100)	23	✘	1.2
	6	**Palliative care physicians should mentor non-palliative care physicians on opioid use for**	1	21 (91)	23	✓	3

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
		individuals with life-threatening illnesses					
	7	**Opioid prescribing should be part of the practices of all clinicians who care for palliative care patients.**	2	21 (96)	22	✓	3
	8	**The importance of identify whether a patient has an opioid use disorder depends on their diagnosis**	2	1 (5) *Disagreement level: 21 (95)*	22	✓	3.4
	9	**The importance of identifying whether a patient has an opioid use disorder depends on their prognosis**	2	4 (18) *Disagreement level: 18 (82)*	22	✓	3.4
	10	**The importance of managing a patient's opioid use disorder (not symptom management) depends on their diagnosis**	2	0 (0) *Disagreement level: 21 (100)*	21	✓	3.4
	11	**The importance of identifying a caregiver's opioid use disorder depends on the patient's prognosis**	2	2 (9) *Disagreement level: 20 (91)*	22	✓	3.4

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	12	**Use of the term "pseudoaddiction" in palliative care[C]**	2	4 (14) *Disagreement level: 19 (86)*	22	✘	2.6
Domain 2 ***Palliative Care Programs and Opioid Safety***	**Palliative care training programs should provide mandatory education on the following topics:**						
	13	Opioid prescribing (i.e., opioid choice, dosing, adverse effects)	1	23 (100)	23	✘	1.8
	14	Chemical coping with opioids	1	23 (100)	23	✘	2.2
	15	Opioid use disorders identification, assessment and treatment	1	23 (100)	23	✘	2.6
	16	Urine drug testing (i.e., result interpretation)	1	23 (100)	23	✓	3
	17	Opioid overdose identification, assessment and treatment	1	22 (96)	23	✘	2.2
	18	Naloxone administration and monitoring	1	23 (100)	23	✘	2.4

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	19	Motivational interviewing to help manage opioid use disorders	1	21 (91)	23	✘	2
	20	Chronic pain management	1	22 (95)	23	✘	1.4
	Health care institutions that provide palliative care (inpatients and/or outpatients) should implement and encourage use of the following supportive measures that promote opioid safety:						
	21	Opioid prescription monitoring programs	1	20 (87)	23	✘	2
	22	Opioid stewardship programs	1	22 (96)	23	✘	2
	23	Quality improvement programs to reduce opioid-related adverse events	1	23 (100)	23	✘	2.6
	24	Data collection on emergency department visits related to aberrant opioid medication taking behaviors in patients receiving palliative care	1	22 (96)	23	✘	2.6
	25	Data collection on emergency department visits related to opioid	1	23 (100)	23	✘	2.8

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
		use disorders in patients receiving palliative care					
	26	Data collection on in-patient aberrant opioid medication taking behaviors in patients receiving palliative care	1	21 (91)	23	✘	2.6
	27	Data collection on in-patient admissions related to opioid use disorders in patients receiving palliative care	1	23 (100)	23	✘	2.8
	28	Data collection on opioid overdoses of patients receiving palliative care	1	23 (100)	23	✓	3.4
	29	Access to pharmacologic opioid use disorder treatments (i.e., methadone, buprenorphine-naloxone)	1	22 (96)	23	✓	3.2
	30	Secure medication drop boxes for disposal of unused opioids should be established in hospitals	1	21 (91)	23	✘	2

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	31	Recommend the use of medication lock boxes for storage of opioids at home	1	23 (100)	23	✘	2.4
	32	Patient experiences with symptom management	2	19 (90)	21	✘	2.6
	Palliative care clinical services (in-patients and out-patients) should include access to the following medical specialties to jointly manage patients who are high-risk of aberrant opioid medication taking behaviors, opioid use disorders and overdose:						
	33	Addiction medicine	1	23 (100)	23	✓	3.8
	34	Psychiatry	1	21 (91)	23	✓	3
	35	Pain medicine	1	21 (91)	23	✓	3
Domain 3 ***Patient and Caregiver Assessments***	**Prior to prescribing opioids for pain or dyspnea management, each patient receiving palliative care should receive an assessment that includes the following:**						
	36	Type of pain (i.e., nociceptive and/or neuropathic pain)	1	23 (100)	23	✘	2.2

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	37	Etiology of pain or dyspnea	1	23 (100)	23	✔	2
	38	History of opioid use and efficacy	1	23 (100)	23	✔	2.2
	39	Patient's functional status	1	23 (100)	23	✔	2
	40	Dependence on caregivers for medication administration	1	23 (100)	23	✔	2.2
	41	Housing instability (i.e., homelessness)	1	23 (100)	23	✔	2.6
	42	Young children that reside or visit patient's home	1	22 (91)	23	✔	2.2
	43	History of psychiatric condition	1	23 (100)	23	✔	2
	44	History of substance use	1	23 (100)	23	✔	2

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	45	Active substance use	1	23 (100)	23	✘	2.2
	46	Financial support and stability	1	21 (91)	23	✘	1.8
	47	Renal impairment	1	21 (96)	22	✘	1.8
	48	Liver impairment	1	22 (96)	23	✘	1.6
	49	Cognitive impairment	1	23 (100)	23	✘	2.4
	50	Caregiver history of substance use	1	22 (96)	23	✓	3.4
	Each of these actions represent/constitute as aberrant opioid medication taking behaviors in individuals with life-threatening illnesses:						
	51	Receiving twelve or more prescriptions in a year	2	0 (0) *Disagreement level: 21 (95)*	22	✘	1.6

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	52	Reports of lost or stolen prescriptions	2	22 (100)	22	✘	2.8
	53	Observable intoxication or withdrawal in clinical setting	1	22 (96)	23	✘	2
	54	Insistence on initiation of opioids, higher doses and/or quantities of opioids	2	19 (86)	22	✘	1.8
	55	Observed or reported opioid hoarding	2	19 (86)	22	✘	2
	56	Self-titration of opioids doses without clinical approval	1	19 (83)	23	✘	2.6
	57	Observations or reports of prescription forgery	1	23 (100)	23	✓	3
	58	Resisting changes to opioids despite adverse effects	1	22 (96)	23	✘	2.2
	59	Reported theft or “borrowing” of opioids	1	23 (100)	23	✓	3

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	60	Route altercation of prescribed opioids	1	23 (100)	23	✓	3
	The following items should be used to identify patients with life-threatening illnesses who are at high risk of aberrant opioid medication taking behaviors…						
	61	Older age	1	1 (4) *Disagreement level: 22 (96)*	23	✗	1.4
	62	Alcoholism using validated tools (i.e., CAGE, Alcohol Use Disorders Identification Test)	1	23 (100)	23	✗	2.2
	63	History of cannabis use	1	0 (0) *Disagreement level: 23 (100)*	23	✗	1.4
	64	Current cannabis use	1	0 (0) *Disagreement level: 23 (100)*	23	✗	1.4

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	65	History of non-medical drug use (i.e., cocaine)	1	22 (96)	23	✘	2
	66	Current non-medical drug use	1	23 (100)	23	✘	2
	67	History of injection drug use	1	22 (96)	23	✘	2.2
	68	Current injection drug use	1	23 (100)	23	✘	2.2
	69	Post-traumatic stress	1	21 (91)	23	✓	3
	70	Sexual abuse history	1	20 (87)	23	✓	3
	71	Criminal record(s) related to substance use disorders	1	23 (100)	23	✘	1.8
	72	Past history of use of prescription medications not as prescribed	2	21 (95)	22	✘	2.8
	73	Family history of problematic substance use	2	20 (91)	22	✘	2.4

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	74	***Consider assessing for the following items to identify patients with life-threatening illnesses who are at high risk of aberrant opioid medication taking behaviors:***	2	17 (81)	21	✘	2.2
		Young age (18 to 24 years old)	Summary of recommended items to be considered for identification of patients with life-threatening illnesses who are at high risk of aberrant opioid medication taking behaviors.				
		Older age (65 years or older)					
		Alcohol family history					
		History of tobacco use					
		Current tobacco use					
		Depression					
		Anxiety					
		Personality disorders					
		Somatization					
		Premorbid chronic pain					
		Unstable housing					

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
		Financial instability					
	75	**Patients with life-threatening illnesses who have opioid use disorders are identified through clinical assessment (e.g., history).**	1	23 (100)	23	✘	2.4
		Opioid overdose is clinically defined as loss of consciousness and respiratory depression. The following items should be used to identify patients with life-threatening illnesses who are at high risk of opioid overdose:					
	76	Benzodiazepine use (i.e., lorazepam)	1	22 (96)	23	✘	2.6
	77	Alcohol use	1	22 (96)	23	✘	1.8
	78	History of previous opioid overdose	1	22 (96)	23	✘	2.0
	79	Receiving opioid prescriptions two or more physicians	1	20 (87)	23	✓	3.2
	80	History of substance use disorder	1	19 (83)	23	✘	1.8

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	81	Active substance use disorder	1	22 (96)	23	✘	2.2
	82	Urine drug tests	2	18 (82)	22	✘	2.8
	83	***Consider assessment for the following items to identify patients with life-threatening illnesses who are at high risk of opioid overdose:***	2	17 (81)	21	✘	1.6
		Older age (65 years old and greater)	Summary of recommended items to be considered for identification of patients with life-threatening illnesses who are at high risk of opioid overdose.				
		Renal impairment					
		Liver impairment					
		Muscle relaxant use (i.e., cyclobenzaprine)					
		Sleep medication/hypnotic use (i.e., zopiclone)					
		Methadone use for pain management					

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
		Methadone use for opioid use disorder management					
		Opioid naïve patients					
		Untreated psychiatric conditions (i.e., schizophrenia)					
		History of obstructive sleep apnea					
		Filling opioid prescriptions at two or more pharmacies					
	The following screening tools should be used to identify patients with life-threatening illnesses who are at high risk of either aberrant opioid medication taking behaviors or opioid use disorder:						
	84	CAGE alcoholism screen	2	17 (81)	21	✘	2.2
	85	Opioid Risk Tool	2	18 (82)	22	✘	2.8
	86	Urine drug tests	2	80 (16)	22	✘	2.6

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	87	**The previously mentioned tools should be used before starting opioid treatment.**	2	18 (82)	22	✘	2.8
	88	**Caregivers(s) of patients on opioid therapy should be assessed for aberrant opioid medication taking behaviors, opioid use disorder and opioid overdose**	2	18 (86)	21	✘	2.8
	89	**Taking a comprehensive substance use history is recommended for assessing caregiver(s) for aberrant opioid medication taking behaviors, opioid use disorder and opioid disorder**	2	17 (81)	21	✘	2.6
Domain 4 ***Opioid Prescribing Practices***	90	**Clinicians should not prescribe opioid doses more than 90mg morphine equivalent daily dose[D]**	2	0 (0) *Disagreement level: 20 (95)*	21	✘	2.2
	The following opioid prescribing practices for patients receiving care in outpatient palliative care clinics or home palliative care visits are strongly recommended:						

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	91	Clinicians should provide a maximum of one-month supply of opioids with each prescription	1	21 (91)	23	✘	2.4
	92	Each patient should have only one opioid prescriber	1	20 (87)	23	✘	2.8
	93	Physicians should have access to regional prescription monitoring programs to track previously dispensed prescriptions	1	22 (96)	23	✓	3.2
	94	If the primary prescriber of opioids is absent, detailed pain management plans and documentation should be provided to the covering clinician	1	23 (100)	23	✓	3.4
	95	Patients who are at high-risk aberrant opioid-related behaviors, opioid use disorders and/or overdose should receive daily to weekly dispensing of opioids.	1	19 (83)	23	✓	3.6

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	96	**Patients with symptom management concerns and active aberrant opioid-related behaviors, opioid use disorders and/or history of overdose be jointly managed with an addictions medicine specialist**	2	17 (91)	21	✓	3
	97	**Access to addiction medicine in all health facilities that provide palliative care services**	2	18 (86)	21	✓	3
Domain 5 ***Opioid Monitoring Practices***	**After initiating opioids or dose adjustment for symptom management, the following measures should be assessed and documented to monitor opioid use and safety in palliative care patients:**						
	98	Analgesic benefit using a validated scale (i.e., Edmonton Symptom Assessment System)	1	19 (83)	23	✘	1.5
	99	Activity level	1	22 (96)	23	✘	1.5
	100	Adverse effects	1	22 (96)	23	✘	1.5

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	101	Aberrant drug-related behaviors (i.e., requests for early refills; prescription forgery)	1	23 (100)	23	✘	1.8
	102	Adherence to clinician instructions for opioid use for symptom management	1	23 (100)	23	✘	1.8
	103	Involvement of patient's support network to ensure compliance with the opioid prescription regimen	1	21 (91)	23	✘	1.8
	104	**Palliative care patients receiving palliative care who are at high-risk or have active aberrant opioid medication taking behaviors should be assessed more frequently than low-risk individuals.**	1	23 (100)	23	✓	3.3
	105	**Palliative care patients who are at high-risk or have active opioid use disorders should be assessed more frequently than low-risk individuals.**	1	23 (100)	23	✓	3.3
	106	**Palliative care patients who are at high-risk of opioid overdose should**	1	23 (100)	23	✓	3.3

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
		be assessed more frequently than low-risk individuals.					
	107	**Nurses should perform pill counts for outpatients in the community (e.g., clinics, home)**	2	17 (81)	21	✘	2.8
Domain 6 ***Patient and Caregiver Education***	**All palliative care patients receiving opioid prescriptions should be educated on the following topics:**						
	108	Signs and symptoms of substance use disorders	1	19 (86)	22	✘	2.5
	109	Difference between physical dependence and opioid use disorders	1	19 (86)	22	✓	3.3
	110	Chemical coping with opioids	1	18 (78)	22	✓	3.5
	111	Indications for opioid use	1	22 (100)	22	✘	2
	112	Opioid adverse effects	1	22 (100)	22	✘	1.8
	113	Opioid overdose signs and symptoms	1	22 (100)	22	✓	3

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	114	Safe storage of opioids	1	22 (100)	22	✓	3.3
	115	Safe disposal of opioids	1	22 (100)	22	✓	3.3
	116	Opioid withdrawal symptoms	1	22 (100)	22	✓	3.5
	117	Driving/operating machinery	1	22 (100)	22	✓	3
	Opioid safety education for patients receiving opioid prescriptions should be provided by:						
	118	Written pamphlet	1	19 (86)	22	✗	2.5
	119	Discussion with opioid prescriber	1	22 (100)	22	✓	3
	120	***Consider using:***	2	21 (100)	21	✓	3
		Formal education session	Summary of recommended education interventions to be considered for delivering opioid safety education for patients.				
		Consultation with pharmacist					

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	121	**Patients should receive instructions (written and verbal) to store opioids in locked containers in a secure location.**	1	21 (95)	22	✘	2.8
	122	**Patients should receive instructions (written and verbal) to return unused medications to pharmacies.**	1	19 (86)	22	✘	2.8
	All caregivers of patients receiving opioid prescriptions should be educated on the following topics:						
	123	The difference between physical dependence and opioid use disorders	1	19 (86)	22	✓	3
	124	Indications for opioid use	1	21 (95)	22	✓	3
	125	Opioid adverse effects	1	22 (100)	22	✓	3
	126	Opioid overdose signs and symptoms	1	21 (95)	22	✓	3
	127	Safe storage of opioids	1	22 (100)	22	✓	3

Domain	Item no.	Statement	Delphi Round	Agreement level; n (%)	No. of panellists	High-priority recommendation[A]	CSPCP importance rating[B]
	128	Safe disposal of opioids	1	21 (95)	22	✓	3.3
	129	**Caregivers should receive instructions (written and verbal) to store opioids in locked containers in a secure location.**	1	21 (95)	22	✗	2.8
	130	**Caregivers should receive instructions (written and verbal) to return unused medications to pharmacies.**	1	19 (86)	22	✓	3

[A]: Recommendations are deemed "high-priority" if their Canadian Society of Palliative Care Physician importance rating was ≥3, where 3 was "very important".

[B]: The Canadian Society of Palliative Care Physicians reviewed the 130 recommendations and used a 5-point Likert scale to rate how important it is that palliative care physicians should be aware of each recommendation. The format of the 5-point Likert scale was as follows: 0 - not at all important, 1- slightly important, 2- moderately important, 3- very important, 4- extremely important.

[C]: The following reference was provided to the panellists: Kwon J, Tanco 8, Hui D, Reddy A and Bruera E. Chemical coping versus pseudoaddiction in patients with cancer pain. Palliative and Supportive Care (2014), 12, 413–417.

[D]: The following reference was provided to the panellists: Busse, J. W., Craigie, S., Juurlink, D. N., Buckley, D. N., Wang, L., Couban, R. J., ... & Guyatt, G. H. Guideline for opioid therapy and chronic noncancer pain. CMAJ (2017), *189* (18), E659-E666.