

Appendix 1 Pain assessment (SPpa)

Obtain the patient's own description of their pain. Most patients have more than one pain. Assess each pain separately and if possible identify the likely cause of the pain, using history, examination and where relevant investigations.

Ask about:

- site and radiation; a body diagram can help
- character; a list of descriptive words may help
- intensity and severity; a rating scale can help
- timing and duration
- exacerbating factors
- relieving factors, including medication
- effect on function, sleep and mood
- response to previous medication and treatment.

Use a structured pain assessment tool to record the patient's pain.

Assess the impact of the pain on the patient and family. Consider if other factors such as emotional, psychological or spiritual distress are having an effect on pain perception.

Try and make a diagnosis of the cause of the pain – including investigation if needed - and discuss this with the patient and family.

Causes of pain

- disease related: direct invasion by cancer, distension of an organ, pressure on surrounding structures.
- bone pain: worse on pressure or stressing bone or weight bearing
- nerve pain: burning, shooting, tingling, jaggling, altered sensation, dermatomal distribution. Consider spinal cord compression.
- liver pain: hepatomegaly, right upper quadrant tenderness, referred pain shoulder tip
- raised intracranial pressure: headache, nausea or both, often worse in the morning or with lying down
- colic: intermittent cramping pain. Consider bowel obstruction, bladder spasm. Consider adjuvant therapies (see Pain Management guideline).
- treatment-related pain: chemotherapy neuropathy, constipation due to opioids, radiation-induced mucositis.
- debility: pressure sores, severe cachexia, oral candidiasis
- other unrelated illnesses: arthritis, osteoporosis, vascular disease, gastritis.

Appendix 2 Conversion tables for opioids (SP)

Conversions from weak oral opioids to oral morphine

Weak oral opioid dose	Equivalent oral morphine dose	Conversion factor from weak oral opioid to morphine
Oral codeine 60mg or oral dihydrocodeine 60mg	≈Oral morphine 5mg	Divide by 10
Oral tramadol 50mg *	≈Oral morphine 5 to 10mg	Divide by 5 to 10
Oral nefopam 30mg *	≈Oral morphine 10mg	Divide by 3
Choosing and changing opioids in palliative care Table 1. Version 2 March 2015		

Conversions from oral morphine to other strong opioids

Oral morphine dose	Equivalent opioid dose	Conversion factor from oral morphine to other opioid
Oral morphine 10mg	≈SC morphine 5mg	Divide by 2
Oral morphine 10mg	≈SC diamorphine 3mg	Divide by 3
Oral morphine 10mg	≈Oral oxycodone 5mg	Divide by 2
Oral morphine 10mg	≈SC oxycodone 2 to 3mg	Divide by 4
Oral morphine 60 to 90mg	≈Fentanyl patch 25 microgram/hour	
Oral morphine 30mg	≈SC alfentanil 1mg (1000micrograms)	
Oral morphine 5 to 10mg	≈Oral hydromorphone 1.3mg*	Divide by 5 to 7.5
Immediate release oxycodone		Conversion factor from oral to SC
Oral oxycodone 5mg	≈SC oxycodone 2 to 3mg	Divide by 2

Appendix 3 Management of breathlessness (SP).

Stridor or evidence of superior vena cava obstruction:

- refer urgently for consideration for stenting or radiotherapy
- give high dose dexamethasone 16mg orally/SC or prednisolone 60mg orally and get specialist advice.

Breathlessness at rest:

Opioids can help reduce breathlessness at rest and at the end of life. See Table on next page.

Steroids:

- consider if airway obstruction, COPD previously responsive to steroids or suspected carcinomatous lymphangitis
- dexamethasone 8-16mg orally/SC in the morning, consider gastric protection. Review after a week and titrate to lowest effective dose. If no benefit stop.

Anxiety and panic attacks:

- lorazepam sublingual 500mcg 4-6 hourly prn for panic attacks
- diazepam oral 2-5mg at night if continuous distressing anxiety
- midazolam SC 2-5mg, 4-6 hourly if oral or SL routes not suitable.

Oxygen:

- should only be used after careful individual assessment
- important to avoid psychological dependence
- if oxygen saturation less than 92%, consider a trial of oxygen via nasal cannulae for symptom relief.

Inhaled therapy:

- for wheeze or COPD give nebulised salbutamol 2.5-5mg four times daily
- if persistent wheeze add nebulised ipratropium bromide 250 to 500mcg four times daily
- nebulised sodium chloride 0.9% may aid expectoration.

Management of severe breathlessness in the last days or hours

- regular and as needed opiates to reduce respiratory distress
- midazolam SC and /or lorazepam sublingual as required for anxiety/ fear
- midazolam and morphine or diamorphine via syringe driver
- palliative sedation if refractory, uncontrolled distress from increasing breathlessness (see section on delirium).

Management of noisy breathing or secretions

- **1st line:** hyoscine butylbromide SC 20mg, hourly as required (up to 120mg/24 hours). Causes less sedation and confusion than hyoscine hydrobromide.
- **2nd line:** glycopyrronium bromide SC 200 micrograms, 6 to 8 hourly as required.
- **3rd line:** hyoscine hydrobromide SC 400 micrograms, 2 hourly as required

Prescribing of opiates for breathlessness (SP)

Has not taken opioid before and is able to take oral medication	Immediate release morphine	Oral	2mg; titrate by 30 to 50% if required and tolerated	Every 4 to 6 hours and/or 2 hourly as required
Has not taken opioid before and is unable to take oral medication	Morphine sulphate	Subcutaneous	1 to 2mg; titrate as above	Every 4 to 6 hours and/or 2 hourly as required
Takes an opioid regularly for pain control	Use the existing immediate-release breakthrough analgesic dose (oral if able, or subcutaneous bolus injection equivalent) for the relief of breathlessness. A maximum of six doses can be taken in 24 hours for all indications (pain, breathlessness and cough). Titrate both regular and breakthrough dose according to response.			
Is frail/elderly	Immediate release morphine	Oral	1 to 2mg; titrate cautiously	Every 6 to 8 hours as required – monitor closely for side effects
Cannot tolerate morphine due to side effects	Second-line opioids may be effective for breathlessness			
Has ongoing breathlessness	Try modified release (long-acting) oral morphine, plus a 4 hourly equivalent dose of immediate release Oral morphine as required for additional episodes of breathlessness.			

Appendix 4 Pharmacological management of delirium and agitation (SP)

1st line haloperidol

- dose: 500 micrograms to 3mg oral or subcutaneous (sc) once daily. Start with low oral dose. Repeat after 2 hours, if necessary.
- maintenance treatment may be needed if cause cannot be reversed; use lowest effective dose: 500 micrograms to 3mg oral or 2mg sc once daily. No evidence of greater benefit from newer antipsychotic medication.

2nd line benzodiazepines

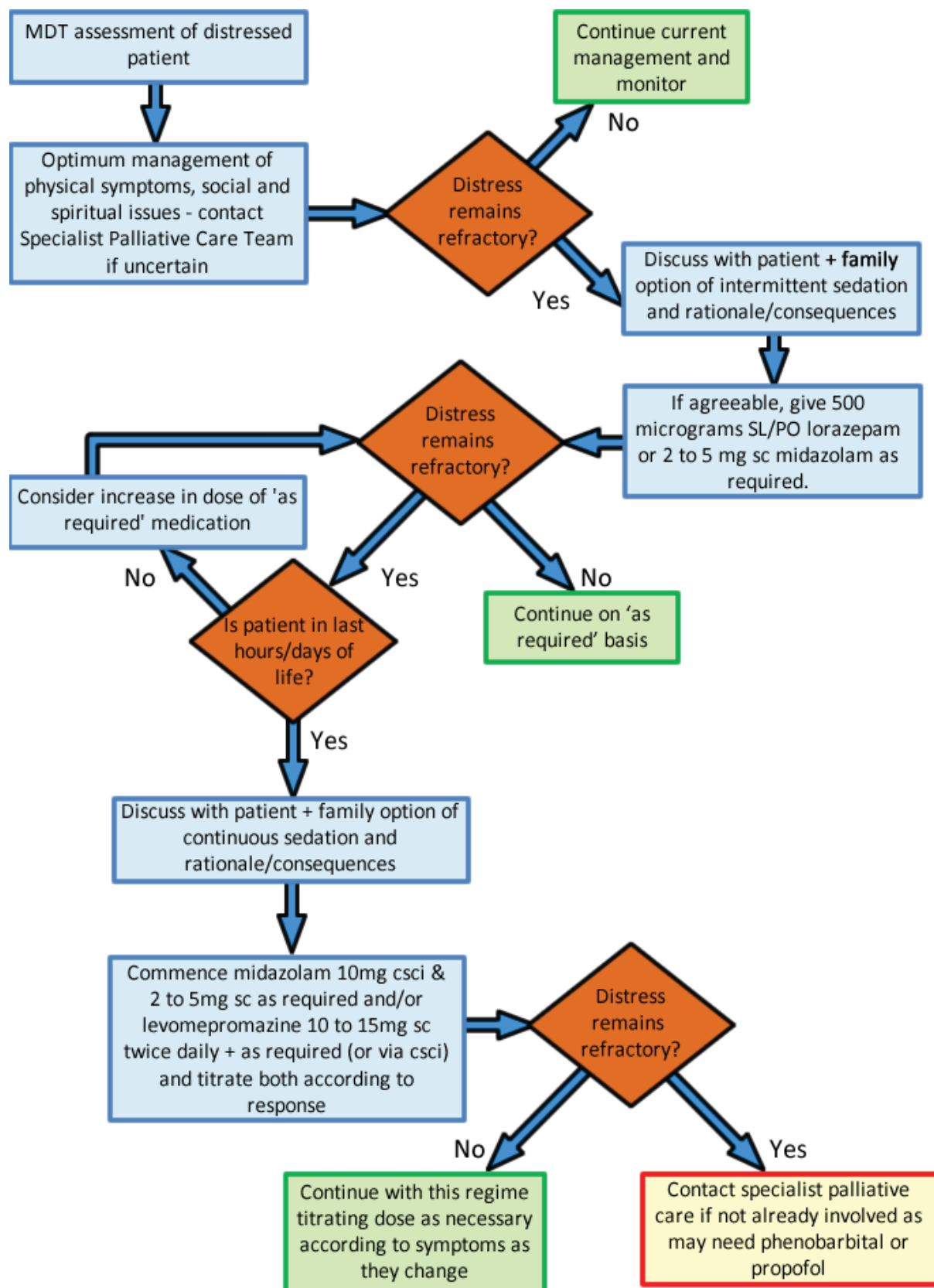
- benzodiazepines do not improve cognition; may help anxiety, use with caution
- used in alcohol withdrawal (often at higher doses), sedative and antidepressant withdrawal; preferred in Parkinson's Disease
- lorazepam 500 micrograms to 1mg tds oral or sublingually
- midazolam SC 2 to 5mg, 1 to 2 hourly or diazepam orally or rectally 5mg, 8 to 12 hourly.

If increased sedation is desirable and appropriate discuss with palliative care:

- add or increase benzodiazepine (midazolam sc infusion 10 to 30mg every 24 hours or diazepam rectally 5 to 10 mg, 6 to 8 hourly)
- change haloperidol to levomepromazine SC 12.5 to 25mg, once or twice daily by injection or as an sc infusion.

N.B. The minimum effective dose to relieve distress should be used – titration may be required but maintain consciousness if possible.

Appendix 5 Flow chart of management of palliative sedation in end of life care



csci = continuous subcutaneous infusion

Appendix 6 Medication used in nausea and vomiting and constipation in palliative care

DRUG	ORAL DOSE	SUBCUTANEOUS DOSE	SYRINGE DRIVER	INDICATIONS/ COMMENTS
METOCLOPRAMIDE	10 to 20mg qds	10mg qds	30-80mg/24hrs	Motility, gastric stasis, outlet obstruction, drug induced, metabolic causes, complex nausea
CYCLIZINE	25 to 50mg tds	25 to 50mg tds	50 to 150mg/24hrs	Bowel obstruction, Intracranial disease
HALIPERIDOL	500mcg to 2mg od	500mcg to 1mg bd	2 to 5mg/24hrs	Drug, metabolic induced nausea
LEVOPROMAZINE	3-6mg bd	2.5 to 5mg bd	5 to 15mg/24hrs	Complex nausea, unknown cause
HYOSCINE HYDROBROMIDE	150-300mcg	200-400mcg	PATCH 1MG/72hours	Intracranial disease, gastric/oesophageal irritation
DOMPERIDONE	10mg tds			Motility disorders

(Scottish Palliative Care guidelines)

Treatment of constipation in palliative care

The options below may be equally effective:

- suggested starting doses are provided; these should be increased as appropriate depending upon individual response
- patient preferences should be taken into consideration
- while separate softener and stimulant allows better titration, a combined preparation means less medication burden for the patient
- rectal treatment may be needed if rectum loaded or impacted
- do not give rectal treatment if rectum is ballooned and empty.

Option A (stimulant ± softener)

- senna 2 to 4 tablets or bisacodyl 5 to 10mg, at bedtime
- if stools become hard or colic supervenes add in softening agent, such as docusate sodium 100mg capsule, twice daily.

Option B (osmotic laxative)

- macrogol (for example Laxido®) 1 to 3 sachets daily
 - if severe constipation, consider a higher dose for 3 days.

Rectal treatment

- soft loading: bisacodyl suppository, sodium citrate or phosphate enema
- hard loading: glycerol suppository as lubricant or stimulant; then treat as above
- very hard loading: arachis oil enema overnight, followed by phosphate enema.

Paraplegic or bedbound patient

- adjust laxatives or loperamide to keep stool firm, but not hard.
- Use rectal intervention every 1 to 3 days to avoid possible impaction resulting in faecal incontinence, anal fissures or both.

Appendix 7 Suggested medications for a JIC Box (SP)

Analgesic: morphine sulfate injection (10mg/ml ampoules)

Dose: 2mg SC, hourly as needed for pain or breathlessness. Supply five (5) 1ml ampoules.

OR diamorphine hydrochloride injection (powder for reconstitution)

Dose: 2mg SC, hourly as needed for pain or breathlessness

Supply five (5) 5mg ampoules plus water for injection (10 ampoules of 10ml).

Anxiolytic sedative: midazolam injection (10mg in 2ml ampoules)

Dose: 2mg SC, hourly as needed for anxiety/distress/myoclonus. Supply ten (10) ampoules of 2ml.

Anti-secretory: hyoscine butylbromide injection (20mg/ml ampoules)

Dose: 20mg SC, hourly as needed for respiratory secretions. Maximum of 120mg in 24 hours. Supply 10 ampoules.

Anti-emetic: levomepromazine injection (25mg/ml ampoules)

Dose: 2.5 to 5mg SC, 8 to 12 hourly as needed for nausea. Supply 10 ampoules. **OR** haloperidol injection (5mg/ml ampoules)

Dose: 500 micrograms SC, 12 hourly as needed for nausea. Supply five ampoules.

Antipsychotic: haloperidol injection (5mg/1ml ampoules)

Dose: 2mg SC once or twice daily as required for confusion/delirium. Supply five ampoules. **OR**

levomepromazine injection (25mg/ml ampoules)

Dose: 12.5mg SC 2 hourly as required for agitation/confusion/delirium (maximum of 6 doses/24 hours). Supply 10 ampoules.

N.B. high doses of levomepromazine and haloperidol are only used as antipsychotics to treat delirium/confusion. They are used in much lower doses for nausea/vomiting.

For end-stage renal disease specialist advice is helpful. Possible changes for these patients are the use of fentanyl/alfentanil for pain. For dyspnoea use the prescribed strong opioid, possibly in association with low-dose midazolam. Halve the dose of haloperidol, metoclopramide and midazolam. Do not use hyoscine *hydrobromide* for retained secretions/death rattle because of an increased risk of sedation and delirium; instead use hyoscine *butylbromide* (dose unchanged) or glycopyrronium (halve dose) (PCF)

Appendix 8 A tool to assist in the identification of medications suitable for discontinuation in palliative cancer patient (from Lindsay et al., 2015)

Medication class	Medication	Considerations for limited benefit	Explanation
Blood thinning	Aspirin	For primary prevention only.	Long-term benefits at population level. Little short or immediate term risk of stopping. Drugs for primary prevention have, in general, no place in the treatment of end-of life patients since the time-to-benefit usually exceeds life expectancy.
Cardiovascular system	Dyslipidaemia medications Statins Fibrates Ezetimibe	All indications.	Long-term benefits at population level. Little short or immediate term risk of stopping.
	Antihypertensive medications ACE inhibitors Sartans Beta blockers Calcium channel blockers Thiazide diuretics	If sole use is to reduce mild to moderate hypertension for secondary prevention of cardiovascular events or as management of stable coronary artery disease.	Long-term benefits at population level. Ongoing therapy unnecessary in most shortened life expectancy.
Musculo-skeletal system	Osteoporosis medications Bisphosphonates Raloxifene Strontium Denosumab	Except if used for the treatment of hypercalcaemia secondary to bone metastases.	Long-term benefits at population level. Little short or immediate term risk of stopping.
Alimentary tract and metabolism	Peptic ulcer prophylaxis Proton pump inhibitors H2 Antagonists	Lack of any medical history of GI bleeding, peptic ulcer, gastritis, GORD or the concomitant use of anti-inflammatory agents including NSAIDs and steroids.	Ongoing therapy unnecessary in most shortened life expectancy.
	Oral hypoglycaemics Metformin Sulfonylureas Thiazolidinediones DPP-4 inhibitors GLP-1 analogues Acarbose	If sole use is to reduce mild hyperglycaemia for secondary prevention of diabetic associated events.	Potential short-term complications outweigh benefit.
Vitamins		If not indicated to treat a low blood plasma concentration.	No evidence for effectiveness.
Minerals			
Complementary – alternative medicines			