

# Symptom control in the last days of life

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## Principles of symptom management in last days of life

These principles are applicable to the care of patients who may be dying from any cause

### Recognise that death is approaching

Studies have found that dying patients will manifest some or all of the following:

- Profound weakness - usually bedbound
- Drowsy or reduced cognition - semi-comatose
- Diminished intake of food and fluids - only able to take sips of fluid
- Difficulty in swallowing medication - no longer able to take tablets

### Treatment of symptoms

The prime

aim of all treatment at this stage is the control of symptoms current and potential.

- **Discontinue any medication which is not essential**
- **Prescribe medication necessary to control current distressing symptoms**
- **All patients who may be dying would benefit from having ANTICIPATORY subcutaneous medication prescribed JUST IN CASE distressing symptoms develop**
- **All medication needs should be reviewed every 24 hours**
- **Prn medications may be administered via a Saf -T- intima line**
- **If two or more doses of prn medication have been required, then consider the use of a syringe driver for continuous subcutaneous infusion (CSCI)**

### The most frequently reported symptoms are:-

- Pain
- Nausea / Vomiting
- Excessive secretions / Noisy breathing
- Agitation / Restlessness
- Dyspnoea

### Opioid choice and syringe drivers

Morphine sulphate is the injectable opioid of choice in the majority of patients.

Alternative opioids (when morphine is not tolerated or in patients with severe renal failure e.g. GFR < 30mL/min) include oxycodone or alfentanil.

**Both morphine sulphate and oxycodone** are compatible with all the medications that are recommended in the following guidelines (cyclizine, haloperidol, levomepromazine, hyoscine butylbromide, glycopyrronium, metoclopramide and midazolam).

**Incompatibility may occur when higher doses of oxycodone >150mg are mixed with cyclizine.** Alfentanil is compatible with all the above medications that are recommended, with exception of cyclizine.

Use either water for injection or sodium chloride 0.9 % as the diluent, **unless mixing with cyclizine**, when water for injection must be used.

**With the introduction of the T34 McKinley syringe drivers use a 20mL syringe as standard and if a larger volume is required use a 30mL syringe.**

For information on the usual doses of drugs used in a syringe driver see inside of back cover.

For guidance on converting between opioids see the coloured opioid conversion chart.

For further information on compatibility in a syringe driver contact:

<b>York Hospital enquiries</b>	<b>Scarborough Hospital enquiries</b>	<b>GP enquiries</b>
<b>York Medicines Information</b>	<b>Scarborough medicine Information</b>	<b>Newcastle Medicines Information</b>
<b>01904 725960</b>	<b>01723 385170</b>	<b>0191 2824631</b>

The algorithms will support you in your management of the most frequently reported symptoms

## Mouth care guidelines

### General principles of mouth care

Assess the whole mouth daily.

Clean the teeth and tongue using a toothbrush and toothpaste, morning and night.

Ensure all toothpaste is rinsed away.

Offer mouth care every 3 to 4 hours using a soft toothbrush.

Use lip salve for dry lips. Care when using oxygen mask.

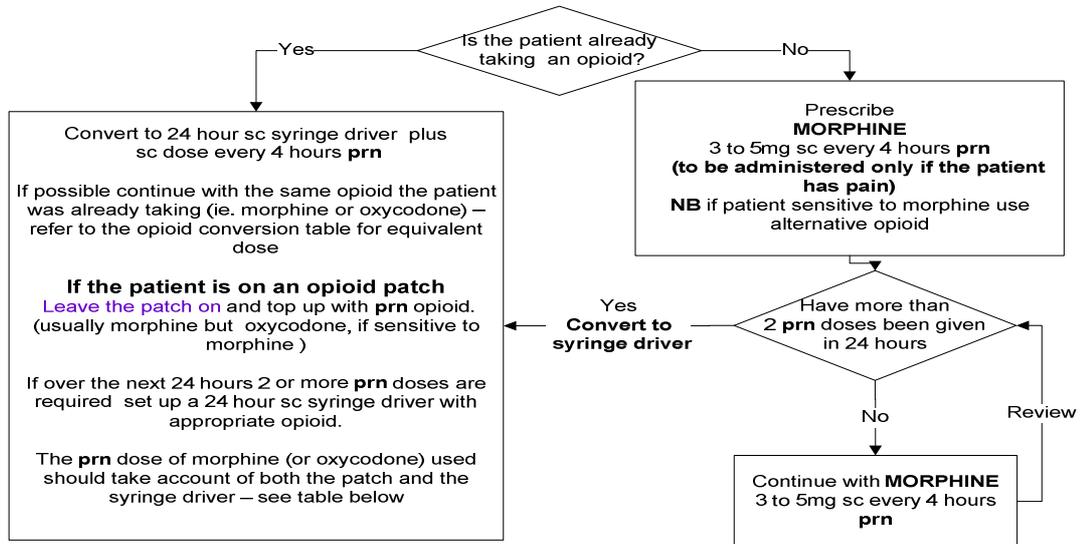
Note any history of pain, dry mouth, change of taste, medications and respond if required.

### Document findings

Problem	Action
<b>Dry mouth</b>	Consider discontinuing contributing factors, e.g. medication. If required, consider humidifying oxygen. Implement general mouth care principles. Offer fluids hourly if appropriate. Consider topical saliva substitutes, e.g. Saliva Orthana spray or Oral Balance gel/ spray.
<b>Coated tongue</b>	Implement general mouth care principles. Rinse the mouth after food with water. Encourage fluids as appropriate. If no improvement in 24 hours consider infection as a cause.
<b>Pain / mucositis / ulceration</b>	Implement general mouth care principles. Consider <b>analgesia</b> – topical/systemic. Use soft toothbrush for hygiene. Consider diluting mouthwash if the patient finds their use painful. <b>Seek specialist advice if symptoms continue.</b>
<b>Infection</b>	Rinse mouth 3 times per day with chlorhexidine 0.2% (Corsodyl) or sodium chloride 0.9%. Implement general mouth care principles. Check for thrush and treat with antifungal, if appropriate. e.g. fluconazole or nystatin

# Pain Control

(Non renal pathway – see next page for patients with renal failure)



**Remember :**  
Any change in the syringe driver dose should take account of the number of **sc prn doses** given over the last 24 hours. If you change the syringe driver dose remember to also change the 4 hourly **prn** dose

**To calculate the prn dose of morphine**  
Prescribe 1/6th of the 24 hour dose in the driver  
e.g. 20mg sc via driver over 24 hours will require 3 to 5mg every 4 hours **prn**

Pain Control

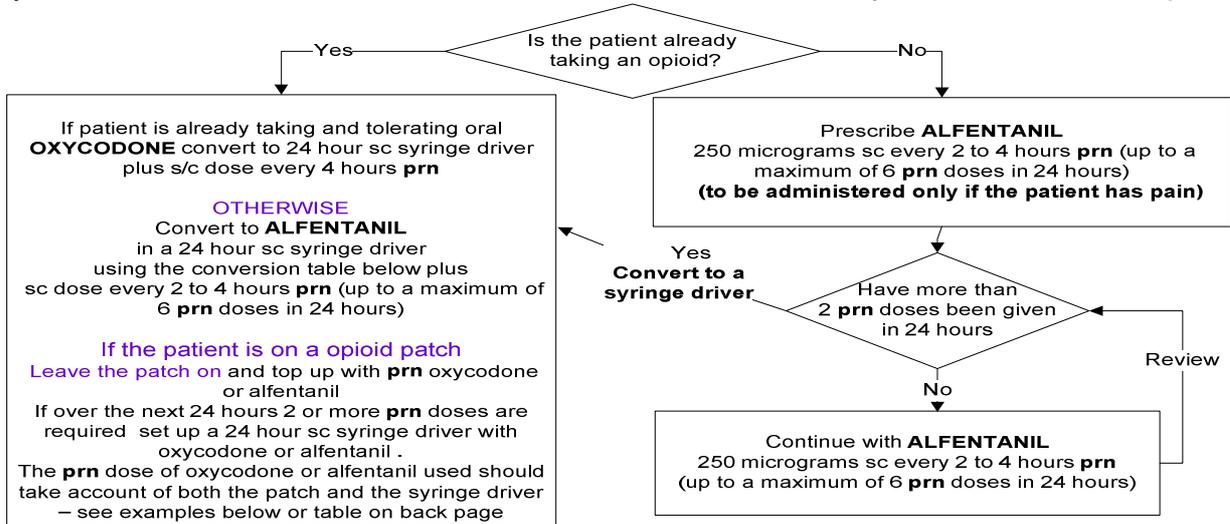
Strong opioid	Conversion to s/c morphine over 24 hours	Example
Zomorph/ MST	Divide total oral morphine dose by 2	Zomorph 30mg bd = 30mg Morphine sc in 24 hours
Fentanyl patch	<p><b>Standard practice is to leave fentanyl patch on patient and continue to change every 3 days.</b> Top up with sc doses of morphine and review.</p> <p><b>To calculate prn sc morphine dose to supplement patch</b></p> <ol style="list-style-type: none"> <li>Work out equivalent 24 hour oral morphine dose for a given patch</li> <li>Divide by 2 to get sc 24 hour morphine dose</li> <li>Divide by 6 to get sc morphine <b>prn</b> dose</li> </ol> <p>The <b>prn</b> dose can be given every 3 to 4 hours up to a maximum of 6 <b>prn</b> doses in 24 hours.</p> <p>A syringe driver may be required if 2 or more <b>prn</b> doses are used.</p> <p>Subsequent breakthrough dose should be calculated from the dose of morphine in the syringe driver and the equivalent given by patch.</p>	<p>Fentanyl patch 75 microgram changed every 72 hours is approximately equivalent to morphine 270mg oral or 140mg sc over 24 hours.</p> <p><b>Leave patch on</b> and calculate initial <b>prn</b> sc morphine dose as <b>1/6<sup>th</sup></b> of 140mg morphine sc over 24 hours = 25mg morphine sc.</p> <p>A syringe driver may be required if 2 or more doses used in the past 24 hours. <b>E.g. If 2 prn doses are used (2 x 25mg) the syringe driver would be set up with 50mg morphine sc over 24 hours.</b></p> <p><b>Calculate subsequent prn morphine s/c doses</b></p> <ul style="list-style-type: none"> <li>Add morphine syringe driver dose i.e. 50mg sc with equivalence in patch i.e. 140mg morphine sc. Total equivalent sc morphine dose in 24 hour = 50mg + 140mg = 190mg.</li> <li>New <b>prn</b> doses would be 1/6<sup>th</sup> of 190mg = 32mg (prescribe 30mg for convenience).</li> </ul>

**It is good practice to document calculations in notes and check dose conversions with a colleague. Consult colourful opioid conversion chart. If unsure please contact the palliative care team for advice**

**Remember to include prn doses in your calculations**

## Pain control in renal failure

(Patients with severe renal failure i.e. GFR < 30mL/min use oxycodone or alfentanil)



**Remember :**

Any change in the syringe driver (SD) dose should take account of the number of **sc prn doses** given over the last 24 hours. If you change the SD dose remember to also change the **prn dose**

**To calculate the prn dose of oxycodone or alfentanil**  
 For **prn** dose prescribe 1/6th of the 24 hour syringe driver dose  
 e.g 3mg alfentanil sc via driver over 24 hours will require 500 microgram alfentanil sc **prn** every 2 to 4 hours **prn** (up to a maximum of 6 **prn** dose in 24 hours)  
 E.g. 20mg oxycodone sc via driver over 24 hours will require 3mg oxycodone sc **prn** every 3 to 4 hours  
 (If the patient is also on a patch you must calculate how much alfentanil or oxycodone this is equivalent to and include this in the 24 hour dose which you use as a basis for your **prn** dose)

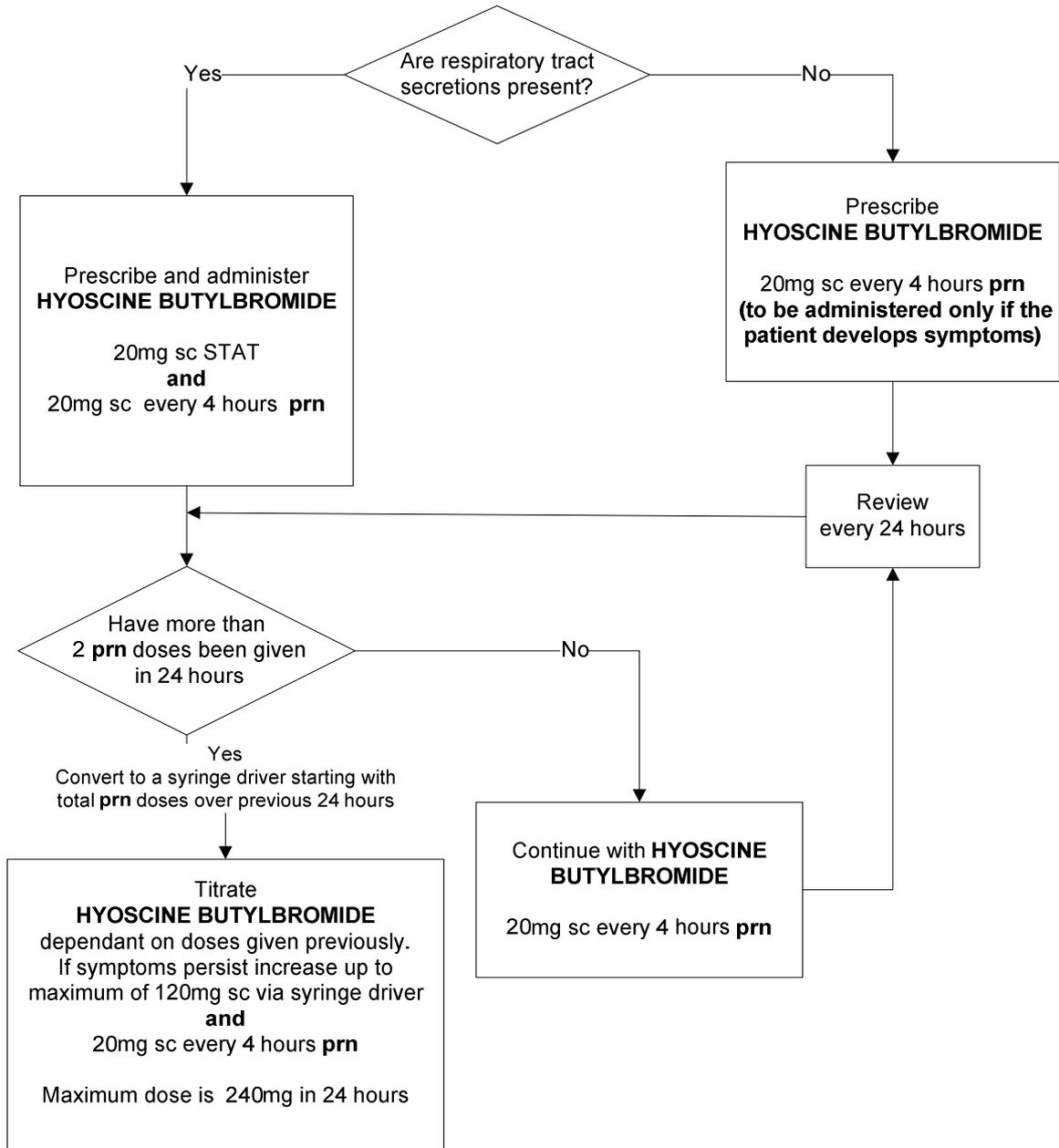
Strong opioid	Conversion to sc alfentanil over 24 hours	Conversion to sc oxycodone over 24 hours
MST/ Zomorph	Divide total daily oral morphine dose by 30 Zomorph 30mg bd= 2mg alfentanil sc over 24 hours	Divide total daily oral morphine by 4 Zomorph 30mg bd = 15mg Oxycodone sc 24 hours
OxyCodone	Divide total oral oxycodone by 15 OxyContin15mg bd =2mg alfentanil sc over 24 hours	Divide total oral oxycodone by 2 OxyContin15mg bd =15mg oxycodone sc over 24 hours
Fentanyl patch microgram/hour	<p><b>Standard practice is to leave fentanyl patch on patient and continue to change every 3 days.</b>                      Top up with sc <b>prn</b> alfentanil and review.  <b>To calculate initial prn sc alfentanil dose to supplement patch</b></p> <ul style="list-style-type: none"> <li>• 1/6<sup>th</sup> of equivalent 24 hour alfentanil sc dose e.g. Fentanyl 75 micrograms is approximately equivalent to 9mg alfentanil sc over 24 hours.</li> <li>• 1/6<sup>th</sup> of equiv 24 hour alfentanil sc dose is 9mg divide by 6 = <b>1.5mg</b></li> <li>• The <b>prn</b> dose can be given every 2 to 4 hours up to a maximum of 6 <b>prn</b> doses in 24 hours.</li> <li>• A syringe driver may be required if 2 or more <b>prn</b> doses are used.</li> </ul> <p>E.g. If 2 <b>prn</b> doses are used (2 x 1.5mg) the syringe driver would be set up with 3mg alfentanil over 24 hours.</p> <p><b>Calculate subsequent prn alfentanil sc doses</b></p> <ul style="list-style-type: none"> <li>• Add alfentanil syringe driver dose i.e. 3mg sc with equivalence of alfentanil in patches i.e. 9mg sc. Total equivalent 24 hour sc alfentanil dose = 3mg + 9mg =12mg.</li> <li>• <b>New prn dose would be 1/6<sup>th</sup> of 12 mg = 2mg</b></li> </ul> <p><b>Prn</b> doses will need increasing as syringe driver requirements increase.</p>	<p><b>Standard practice is to leave fentanyl patch on patient and change to change every 3 days.</b>                      Top up with sc <b>prn</b> oxycodone and review.  <b>To calculate initial prn sc oxycodone dose to supplement patch</b></p> <ul style="list-style-type: none"> <li>• 1/6<sup>th</sup> of equivalent 24 hour oxycodone sc dose e.g. Fentanyl 75 micrograms is approximately equivalent to 70mg oxycodone sc over 24 hours.</li> <li>• 1/6<sup>th</sup> of equiv 24 hour oxycodone sc dose is 70mg divide by 6 = <b>10mg</b></li> <li>• The <b>prn</b> dose can be given every 2 to 4 hours</li> <li>• A syringe driver may be required if 2 or more <b>prn</b> doses are used.</li> </ul> <p>E.g. If 2 <b>prn</b> doses are used (2 x 10mg) the syringe driver would be set up with 20mg oxycodone over 24 hours.</p> <p><b>Calculate subsequent prn oxycodone sc doses</b></p> <ul style="list-style-type: none"> <li>• Add oxycodone syringe driver dose i.e. 20mg sc with equivalence of oxycodone in patches i.e. 70mg sc. Total equivalent 24 hour sc alfentanil dose = 20mg + 70mg =90mg.</li> <li>• <b>New prn dose would be 1/6<sup>th</sup> of 90 mg = 15mg</b></li> </ul> <p><b>Prn</b> doses will need increasing as syringe driver requirements increase.</p>

**It is good practice to document calculations in notes and check dose conversions with a colleague. Consult colourful opioid conversion chart. If unsure please contact the palliative care team for advice**

**Remember to include prn doses in your calculations**

## Respiratory tract secretions

(Remember you cannot clear existing secretions, but you can help stop further production)



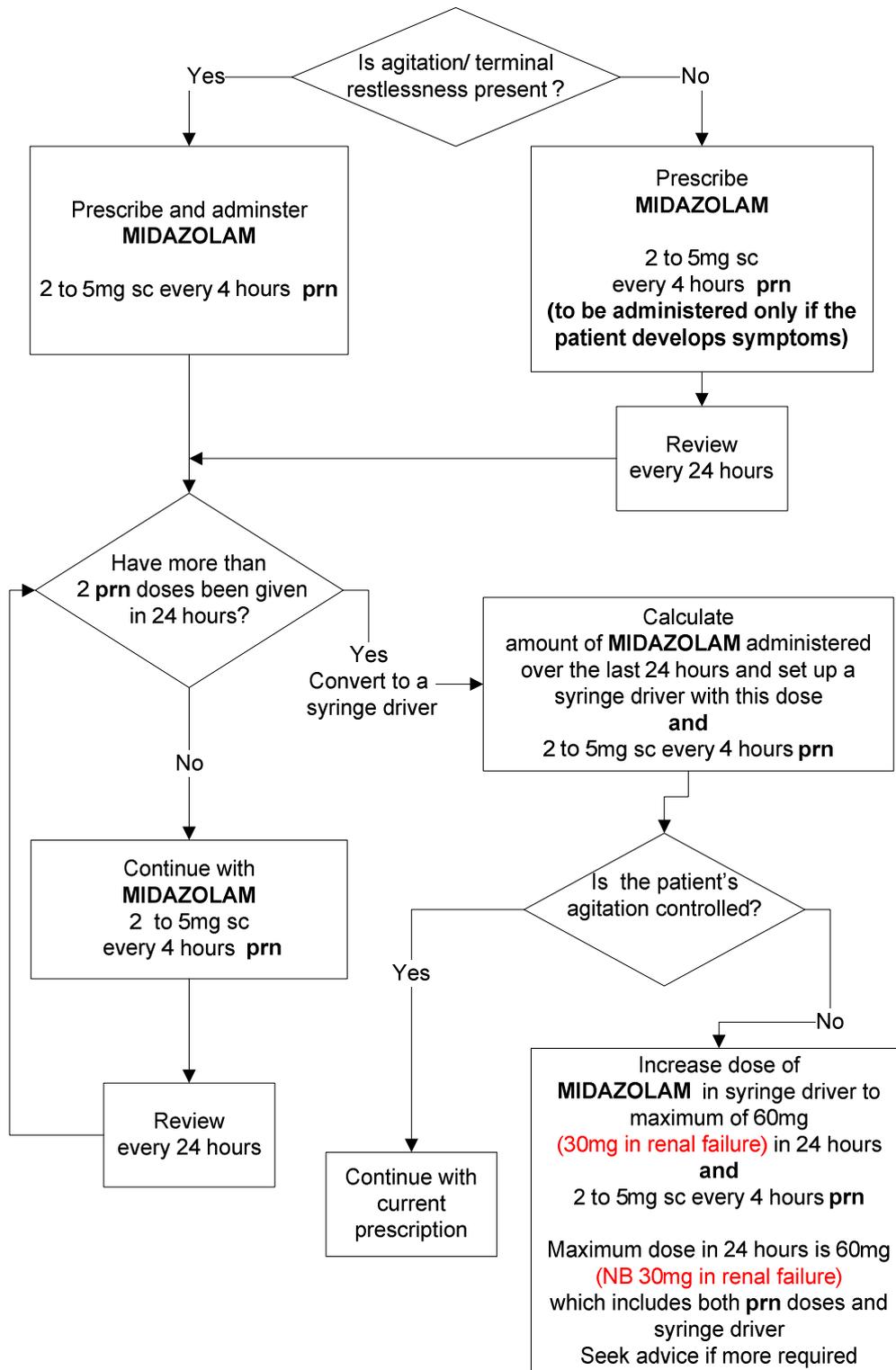
**HYOSCINE BUTYLBROMIDE** (BUSCOPAN) above 60mg in 24 hours may precipitate when mixed with CYCLIZINE. If problems discontinue cyclizine and switch to levomepromazine.

**GLYCOPYRRONIUM** may be used as an alternative if hyoscine butylbromide not effective (reduced doses in renal failure).

**HYOSCINE HYDROBROMIDE** is **not recommended in patients with renal failure** because of excessive drowsiness or paradoxical agitation.

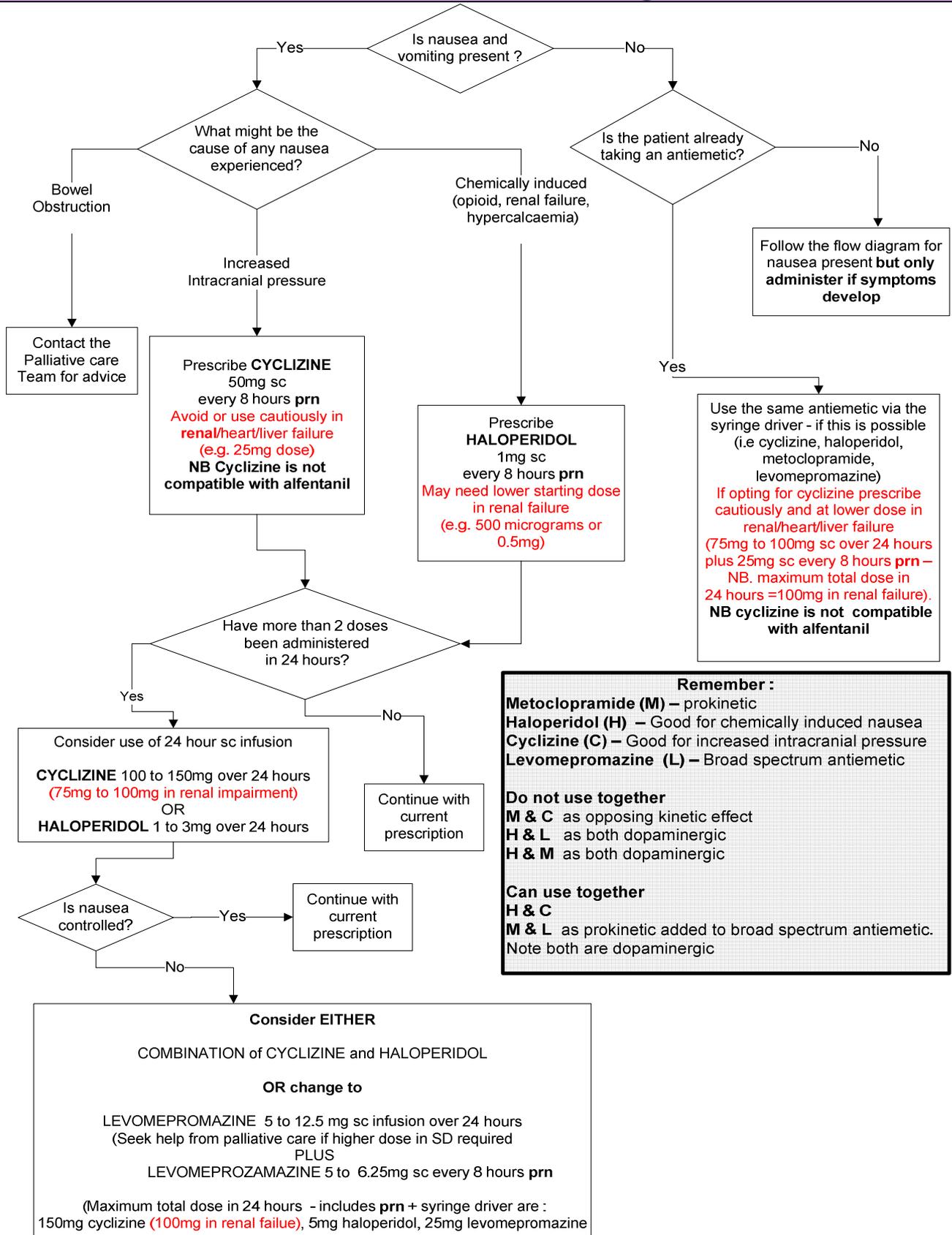
## Agitation / Terminal restlessness

Before prescribing have all reversible causes been excluded? e.g. urinary retention



**NB if uncontrolled** on a maximum of 60mg midazolam (30mg in renal failure) **consider levomepromazine** starting at 6.25mg prn. Further doses may need to be added to the syringe driver. If symptoms continue contact the Specialist Palliative Care Team.

# Nausea and Vomiting

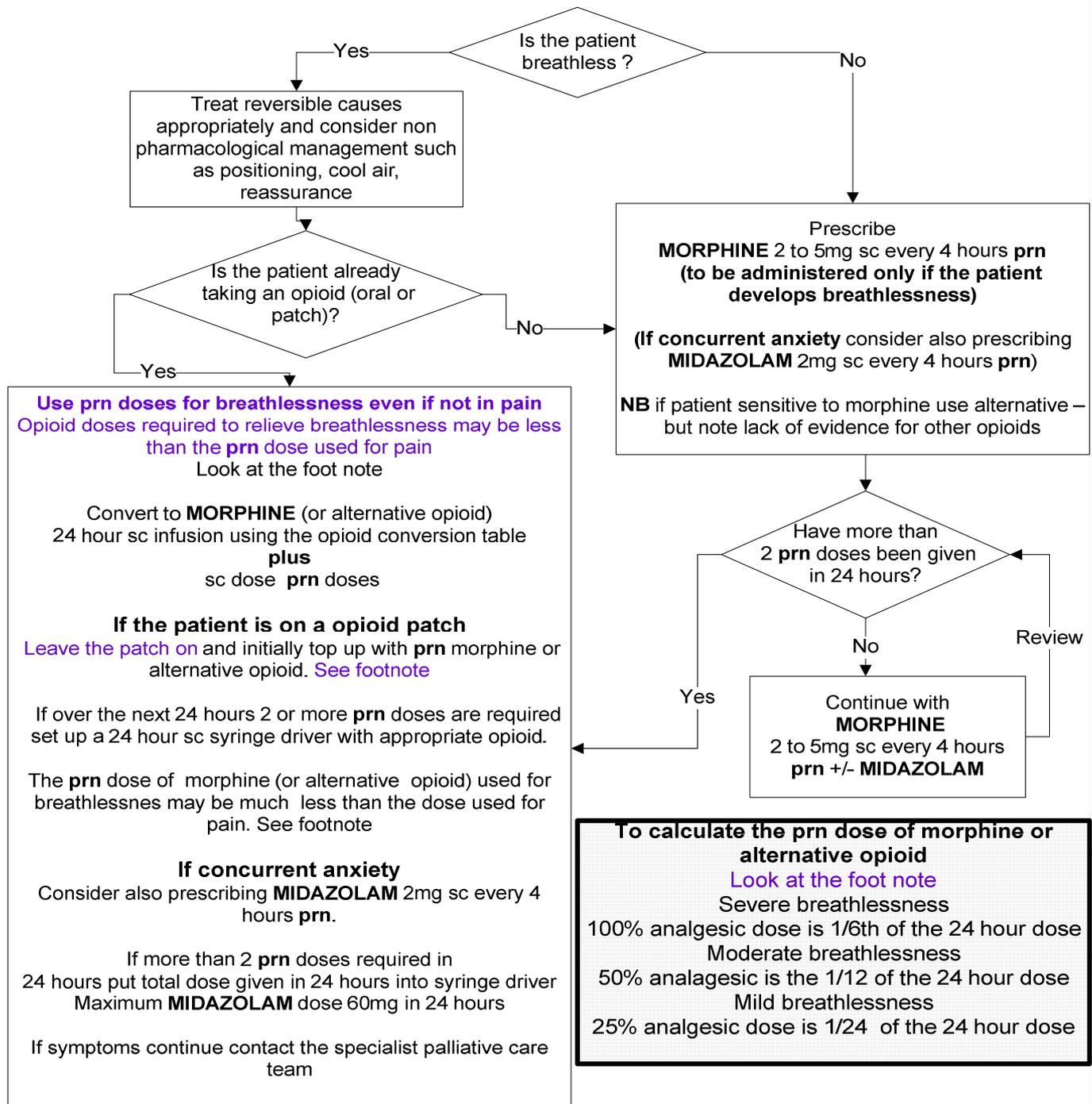


## Dyspnoea (Breathlessness)

(Non renal pathway –see next page for patients with renal failure)

Opioids are more useful for patients who are breathless at rest than those who are breathless on exertion

Reference page 368 of PCF4.



### Note :

**Severe breathlessness** >7/10 a dose that is 100% of 4 hourly analgesic dose may be needed

**Moderate breathlessness** 4 to 6/10 a dose that is 50 to 100% of 4 hourly analgesic dose may be needed

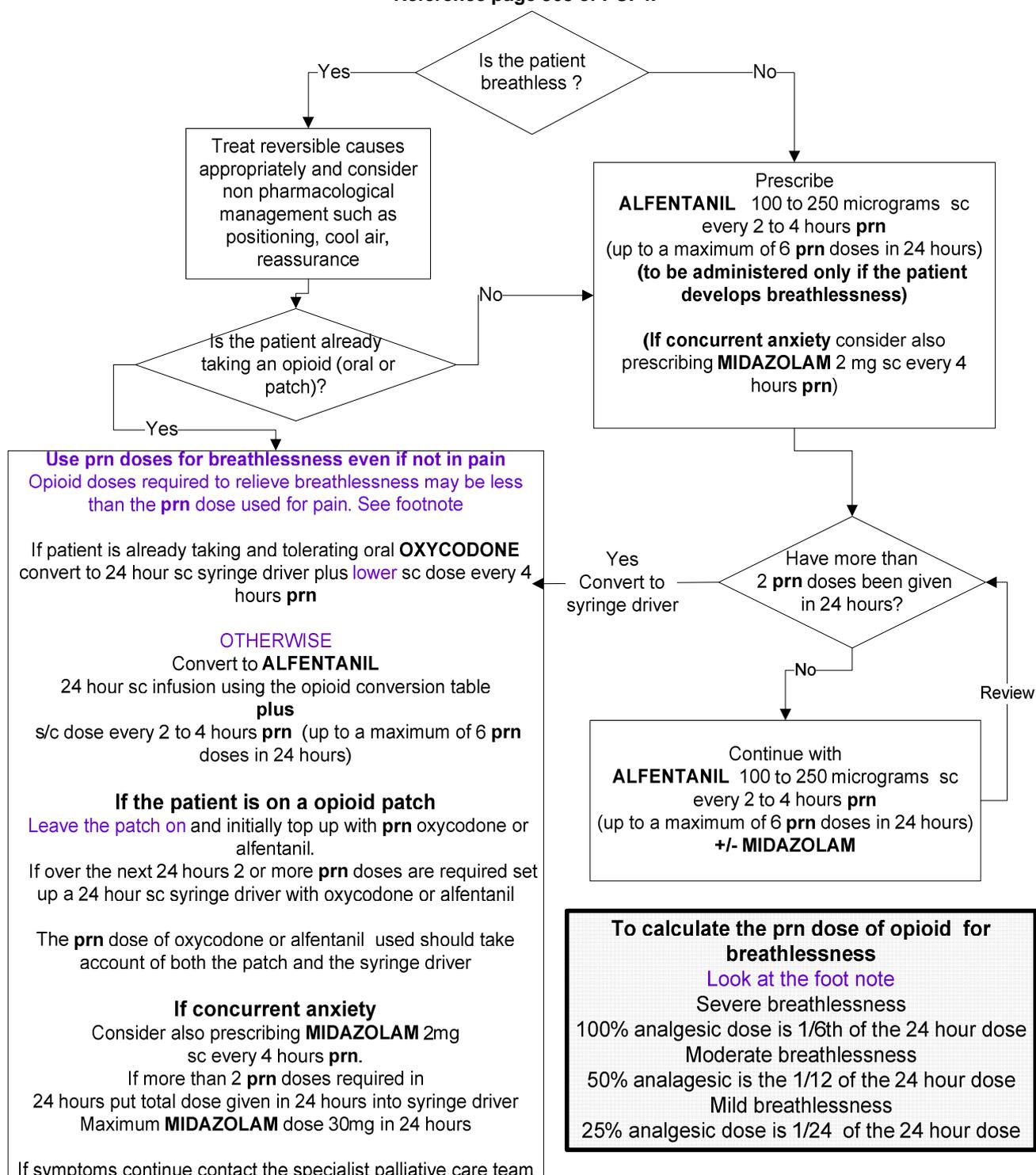
**Mild breathlessness** < 3/10 a dose that is 25 to 50% of 4 hourly analgesic dose may be needed

Morphine is normally used for breathlessness. This is the opioid which has the best evidence base for treatment of breathlessness. In renal impairment however morphine accumulates and alfentanil or oxycodone is preferred for this reason.

## Dyspnoea (Breathlessness) in Renal Failure

(Patients with severe renal failure i.e. GFR < 30mL/min)

Opioids are more useful for patients who are breathless at rest than those who are breathless on exertion  
Reference page 368 of PCF4.



### Note :

**Severe breathlessness** > 7/10 a dose that is 100% of 4 hourly analgesic dose may be needed

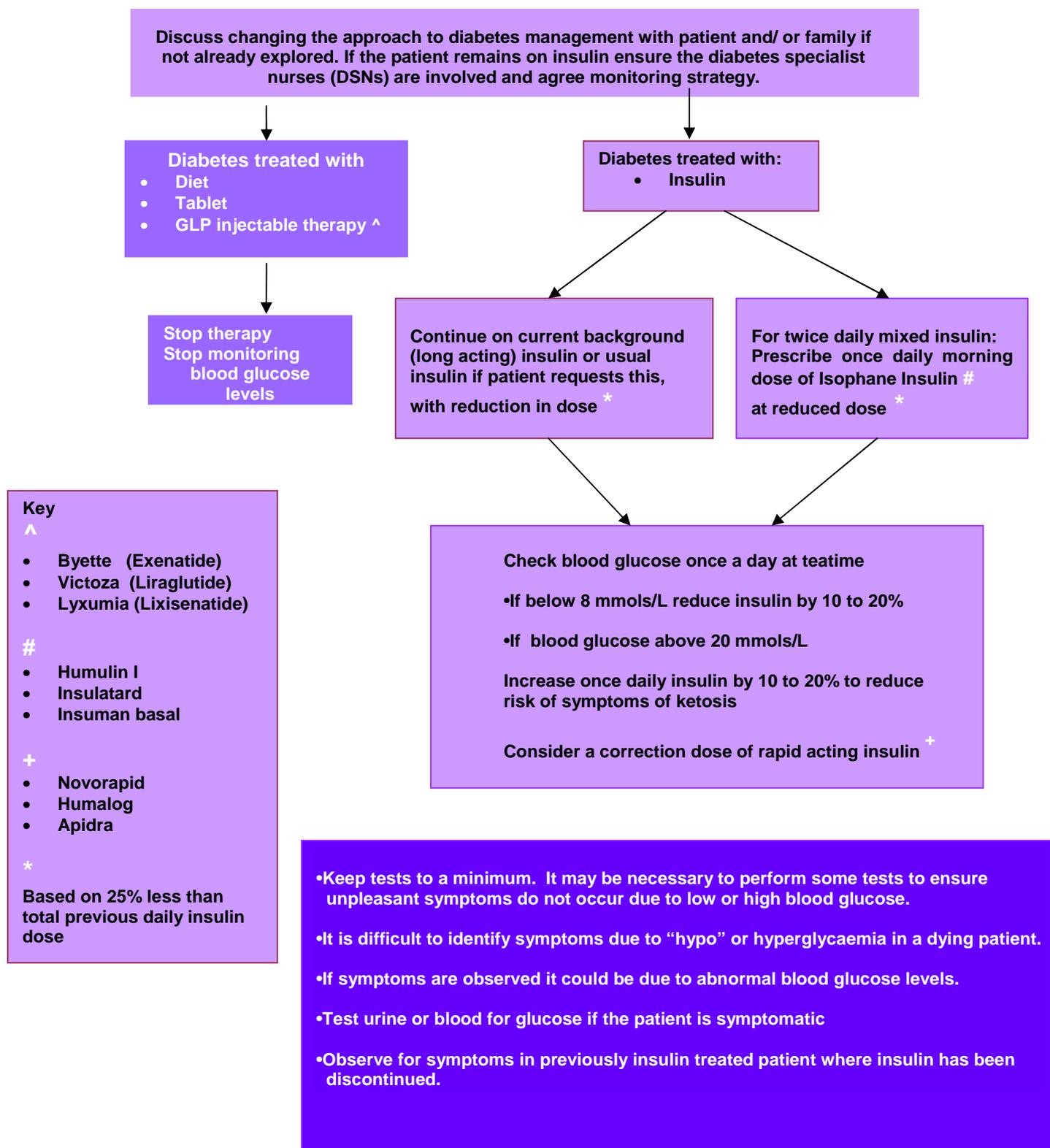
**Moderate breathlessness** 4 to 6/10 a dose that is 50 to 100% of 4 hourly analgesic dose

**Mild breathlessness** < 3/10 a dose that is 25 to 50% of 4 hourly analgesic dose may be needed

Morphine would normally be used for breathlessness. This is the opioid which has the best evidence base for treatment of breathlessness. In renal impairment however morphine accumulates and alfentanil or oxycodone is preferred for this reason.

**Algorithm for an End of Life Diabetes Care Management Strategy is given below:**  
*adapted from End of Life diabetes Care: Clinical care recommendations 2<sup>nd</sup> edition*

## Last Days of Life Diabetes Care Management



For queries relating to the diabetes flowchart please contact the Diabetes Specialist Nurses  
 in York: 01904 726510 and  
 in Scarborough: 01723 342274

For queries relating to palliative care please contact the Palliative Care Team

## Guidance for prescribing anticipatory medicines subcutaneously

If your patient has renal failure look at the cautions in red

Drug	Use	Stat dose sc	24 hours sc dose in syringe driver (SD)	Usual max dose in 24 hours (prn + SD)
Medication for nausea and vomiting				
CYCLIZINE 50mg in 1mL	Centrally acting on vomiting centre. Good for nausea associated with bowel obstruction or increased intracranial pressure Dilute with water <b>Note</b> Dose reduction may be necessary in renal, cardiac or liver failure e.g. 25mg	50mg <i>(25mg in patients with renal/heart/liver failure.)</i> <b>Do not use if patient has two or more of above risk factors</b>	100 to 150mg <i>(75 to 100mg in renal/heart/liver failure)</i>	150mg <i>(75 to 100mg in renal/heart/liver failure)</i>
HALOPERIDOL 5mg in 1mL	Good for chemically induced nausea	1mg <i>May need lower dose in elderly/renal failure</i> 500microgram	1 to 3mg	5mg
METOCLOPRAMIDE 10mg in 2mL  NB MHRA caution	Antiemetic action 1. Prokinetic (accelerates GI transit) 2. Centrally acting on chemo-receptor trigger zone (CTZ), blocking transmission to vomiting centre	10mg <i>(5 to 10mg)</i>	30 to 60mg <i>(30mg in renal failure)</i>	120mg <i>(30mg in renal failure)</i>
LEVOMEPRMAZINE 25mg in 1mL	Broad spectrum antiemetic, works on chemo-receptor trigger zone (CTZ) and vomiting centre (at lower doses) Dilute with sodium chloride 0.9% when used alone	5 to 6.25mg	5 to 12.5mg	25mg  If require higher doses consult palliative care
Medication for agitation				
MIDAZOLAM 10mg in 2mL	Sedative/anxiolytic (terminal agitation). Also anticonvulsant and muscle relaxant	2 to 5mg Always start low <i>For major bleeds use 10mg</i>	5 to 60mg <i>(30mg in renal failure)</i> Start with lower dose & titrate	60mg <i>(30mg in renal failure)</i>
LEVOMEPRMAZINE 25mg in 1mL	Antipsychotic used for terminal agitation (2 <sup>nd</sup> line to midazolam)	6.25 to 12.5mg Start with lower dose & titrate	6.25 to 50mg Seek help with higher doses	200mg <i>(25mg to 50mg in renal failure)</i>
Medication for respiratory secretions				
HYOSCINE BUTYLBROMIDE 20mg in 1mL	Antisecretory - useful in reducing respiratory tract secretions. Has antispasmodic properties May precipitate when mixed with <b>cyclizine</b> or <b>haloperidol</b> <b>Less sedating than HYOSCINE HYDROBROMIDE as does not cross the blood brain barrier</b>	20mg	40 to 120mg	240mg
GLYCOPYRRONIUM 200microgram in 1mL	Antisecretory - useful in reducing respiratory tract secretions Also has antispasmodic properties	200microgram <i>(100microgram)</i>	400 to 1200 microgram (1.2mg) <i>(200 to 600 microgram)</i>	1200 micrograms (1.2mg) <i>(600 microgram in renal failure)</i>

# Opioid dose conversion chart, syringe driver doses, rescue / prn doses and opioid patches

Use the conversion chart to work out the equivalent doses of different opioid drugs by different routes.

The formula to work out the dose is under each drug name. Examples are given as a guide

Oral opioid mg /24 hour (Divide 24 hour dose by six for 4 hourly prn oral dose )		Subcutaneous infusion of opioid Syringe driver (SD) dose in mg per 24 hours (or micrograms for alfentanil where stated)				Subcutaneous prn opioid Dose in mg every 4 hours injected as required prn NB Alfentanil in lower doses in micrograms				Opioid by patch Dose microgram/hour	
Morphine 24 hour	Oxycodone 24 hour	Diamorphine sc 24 hour	Morphine sc 24 hour	Oxycodone sc 24 hour	Alfentanil sc 24 hour (500microgram/mL)	Diamorphine 4 hour	Morphine 4 hour	Oxycodone 4 hour	Alfentanil 2 to 4 hour (500microgram/ mL)	Fentanyl normally change every 72 hours	Buprenorphine B=Butrans change 7 days T = Transtec change 96 hrs (4 days)
	Calculated by dividing 24 hour oral morphine dose by 2	Calculated by dividing oral morphine dose by 3	Calculated by dividing oral morphine dose by 2	Calculated by dividing oral oxycodone dose by 2	Calculated by dividing 24 hour oral morphine dose by 30	Prn dose is one sixth (1/6 <sup>th</sup> ) of 24 hour subcutaneous (sc) syringe driver dose plus opioid patches if in situ. <b>NB Alfentanil injection is short acting. Maximum 6 prn doses in 24 hours. If require more seek help</b>				Conversions use UK SPC	
20	10	5	10	5	500mcg	1	2	1	100mcg	(6)	B 10
45	20	15	20	10	1500mcg	2	3	2	250mcg	12	B 20
90	45	30	45	20	3mg	5	7	3	500mcg	25	T 35
140	70	45	70	35	4500mcg	8	10	5	750mcg	37	T 52.5
180	90	60	90	45	6mg	10	15	8	1mg	50	T 70
230	115	75	115	60	7500mcg	12	20	10	1.25mg	62	T 70 + 35
270	140	90	140	70	9mg	15	25	10	1.5mg	75	T70 + 52.5
360	180	120	180	90	12mg	20	30	15	2mg	100	T 140
450	225	150	225	110	15mg	25	35	20	2.5mg	125	-
540	270	180	270	135	18mg	30	45	20	3mg	150	-
630	315	210	315	160	21mg	35	50	25	3.5mg	175	-
720	360	240	360	180	24mg	40	60	30	4mg	200	-

## Equivalent doses if converting from oral to sc opioid

### Calculation of breakthrough/ rescue / prn doses

#### Oral prn doses:

- Morphine or Oxycodone: 1/6<sup>th</sup> of 24 hour oral dose

#### Subcutaneous:

- Morphine & Oxycodone: 1/6<sup>th</sup> of 24 hour sc syringe driver (SD) dose
- Alfentanil: 1/6<sup>th</sup> of 24 hour sc SD dose
  - Short action of up to 2 hours
  - Seek help If reach maximum of 6 prn doses in 24 hours

(For ease of administration, opioid doses over 10mg, prescribe to nearest 5mg)

### Renal failure/impairment GFR<30mL/min: Morphine/Diamorphine metabolites accumulate and should be avoided.

- Fentanyl patch** if pain is stable.
- Oxycodone** orally or by infusion if mild renal impairment
- If patient is dying & on a fentanyl or buprenorphine patch top up with appropriate sc **oxycodone** or **alfentanil** dose & if necessary, add into syringe driver as per renal guidance
- If **GFR<15mL/min** and **unable to tolerate oxycodone** use **alfentanil** sc

If unsure please seek help from palliative care

### Fentanyl and buprenorphine patches in the dying/moribund patient

- Continue fentanyl and buprenorphine patches in these patients.
  - Remember to change the patch(es) as occasionally this is forgotten!
  - Fentanyl patches are more potent than you may think

If pain occurs whilst patch in situ

- Prescribe 4 hourly prn doses of subcutaneous (sc) morphine unless contraindicated.
- Use an alternative sc opioid e.g. **alfentanil** or **oxycodone** in patients with
  - poor renal function,
  - morphine intolerance
  - where morphine is contraindicated

- Consult **pink table** when prescribing 4 hourly prn subcutaneous opioids

### Adding a syringe driver (SD) to a fentanyl or buprenorphine patch

If 2 or more rescue/ prn doses are needed in 24 hours, start a syringe driver with appropriate opioid and continue patch(es). The opioid dose in the SD should equal the total prn doses given in the previous 24 hours up to a maximum of 50% of the existing regular opioid dose. Providing the pain is opioid sensitive continue to give prn sc opioid dose and review SD dose daily.

E.g. Patient on 50 micrograms/hour fentanyl patch, unable to take prn oral opioid and in last days of life. Keep patch on. Use appropriate opioid for situation or care setting. If 2 extra doses of 15 mg sc morphine are required over the previous 24 hours, the initial syringe driver prescription will be morphine 30mg/24 hour. Remember to look at the dose of the patch and the dose in the syringe driver to work out the new opioid breakthrough dose each time a change is made.

Always use the chart above to help calculate the correct doses.