Pan Birmingham NHS
Cancer Network

Guideline for the use of symptom control
(West Midlands Palliative Care Physicians)

Version: 5th Edition, January 2012

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This is a national document produced by the West Midlands Palliative Care Physicians and is the latest version.

On page 35 of the 2012 West Midlands guidance the dose stated for Domperidone is 10-20 mg qds – **current MHRA advice(May 2012) would be to limit this to 10 mg tds in view of reported concerns regarding the possibility of cardiac toxicity in higher doses.**

West Midlands Palliative Care Physicians

Palliative care

Guidelines for the use of drugs in symptom control

Revised Jan 2012

5th Edition, 2012

Guidelines for the use of drugs in symptom control

These guidelines are not meant to replace the many available texts on the subject of palliative care. They are a summary of the current practice of specialists working in palliative care in the West Midlands Region. It is acknowledged that there may be slight local variation and emphasis in practice.

These guidelines can be used for patients who are receiving care at home or in hospitals and should meet the needs of most patients. The medical and nursing staff of your local Specialist Palliative Care Team are available if further advice is required. (See Appendix III Specialist palliative care services in the West Midlands).

Some of the management strategies describe the use of drugs outside their licensed indications. They are, however, established and accepted good practice.

The production of these guidelines remains independent, funded by the sales of previous editions. No external funding has been received. The guidelines have the approval of the West Midlands Palliative Care Physicians.

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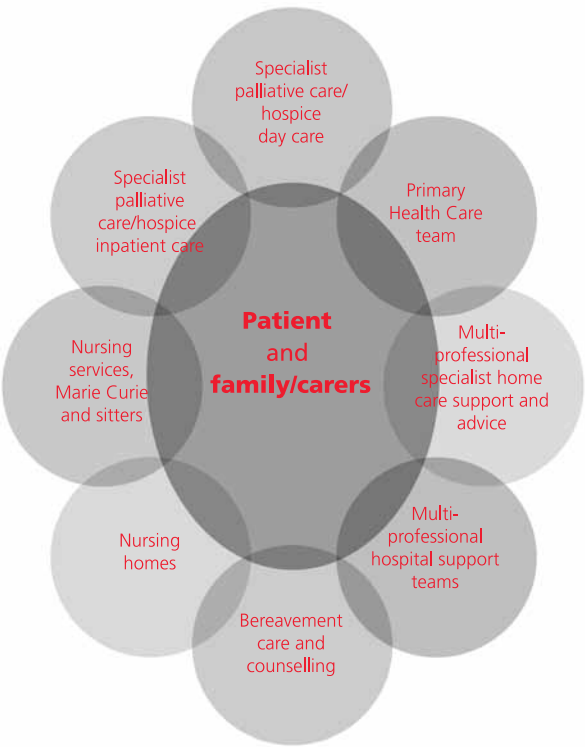

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On behalf of the West Midlands Palliative Care Physicians, the editors of the 5th Edition would like to thank Rhona Clay, Specialist Palliative Care Pharmacist, Coventry and Warwickshire

Chapter 1
Pain

POINTS ABOUT PAIN IN PEOPLE WITH CANCER

- The assessment of pain is part of the holistic care of the patient
- 30% of people with cancer have no pain
- Those with pain often have several types. A patient who feels cared for may feel less pain
- A patient free from pain is better placed to face his/her illness
- Cancer pain can be well controlled in 95% of patients. If the patient's pain appears not to respond, consider alternative causes of pain (spiritual, social or psychological factors). Cancer pain may also be related to debility e.g. pressure ulcers
- Patient and carer understanding of the use of their medication is vitally important in achieving good pain control

PAIN ASSESSMENT

Is it a *cancer related* pain? If so consider four main types:

1. Visceral/soft tissue pain
   - opioid sensitive - use the “ladder” (see opposite)

2. Bone pain
   - NSAID sensitive
   - partly opioid sensitive
   - radiotherapy may help

3. Nerve related
   - partly opioid sensitive
   - adjuvant analgesics may often be needed (see pages 29–31)

4. Incident pain
   - e.g. exacerbations of pain on movement, may require fast acting analgesia

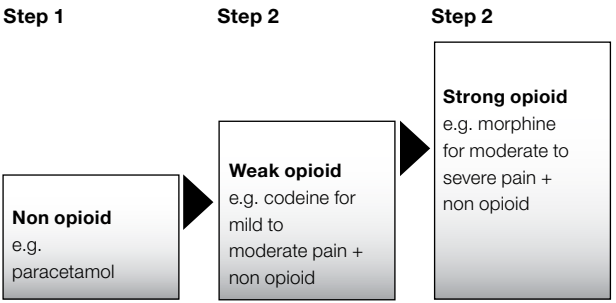
Many pains are *not cancer related* but may be:
- Treatment related e.g. constipation, post radiotherapy
- Coincident illness or condition e.g. arthritis, migraine

Many factors influence the perception of pain. e.g. fear, loneliness, boredom.

PAIN RELIEF

1. By the clock
   Cancer pain is continuous - Use regular analgesia appropriate dose intervals - not just p.r.n.

2. By the 'ladder'



Plus adjuvant analgesia if required
e.g. NSAID / anticonvulsant / antidepressant (page 29)

The 'ladder' has no 'top rung' as there is no maximum dose for strong opioids

If pain is still a problem with high doses of strong opioid, (greater than 300mg morphine equivalent /24hrs), or severe side effects, reconsider the cause of the pain, and/or seek specialist palliative care advice

3. By the mouth
   The oral route is preferred for all steps of the analgesic 'ladder' unless there is a clinical reason why absorption of drugs given orally will not be effective

STEP 1:

PARACETAMOL AND NON-STEROIDAL ANTI-INFLAMMATORY DRUGS

Paracetamol

Therapeutic effects

- analgesic
- anti-pyretic

Dose: 500mg - 1g, 4–6 hourly. Max dose 4g in 24 hours

Preparations: Tablets: 500mg
Dispersible tablets: 500mg.
Oral suspension: 250mg in 5ml.
Suppositories: 500mg
Injection for IV infusion: 10mg/ml, 50ml (500mg) and 100ml (1g) vials

Non-steroidal anti-inflammatories – NSAIDs

Therapeutic effects

- Anti-inflammatory
- Anti-pyretic
- Analgesic

Indications: for analgesia in palliative care, including action as adjuvant analgesic

1. Bone pain
2. Soft tissue pain due to malignant infiltration
3. Arthritis
4. Possible role in early management of neuropathic pain

- Assess analgesic response after regular use for one week

- Patients considered to be at risk of NSAID induced gastroduodenal ulceration (age over 65 years, past history of PUD, concomitant oral steroids or anticoagulants, serious comorbidity[1]) should receive a gastro-protective drug such as a proton pump inhibitor

- Use with extreme caution in renal failure. Fluid retention and renal function may all be worsened by NSAIDs. There is little evidence to suggest that any particular NSAID is safer than another in respect of renal toxicity

- NSAIDs may be considered for asthmatic patients unless they have a history of aspirin sensitivity

Non-steroidal anti-inflammatory drugs[1]

Drug	Adult dose	Dosage forms
Ibuprofen**	Oral: 200–400mg tds	**Tablet:** 200mg, 400mg, 600mg **MR tablet:** 800mg **MR capsule:** 300mg **Suspension:** 100mg/5ml **Granules:** 600mg sachet
Nabumetone*	Oral: 500 mg on-1g bd	**Tablet:** 500mg Suspension: 500mg/5ml
Naproxen**	Oral: 250–500mg bd	**Tablet:** 250mg, 500mg **Tablet EC:** 250mg, 500mg **Suspension:** Specials manufacturer
Diclofenac**	Oral: Up to 150mg in 24 hours Rectal: 75–150mg daily in divided doses	**Tablet:** 25mg, 50mg **MR tablets and capsules:** 75mg, 100mg **Dispersible tablets:** 50mg **Suppositories:** 25mg, 50mg, 100mg

Risk of GI side effects:
** Lowest*
*** Relatively safe*
MR = modified release
EC = enteric coated

Nabumetone is commonly prescribed outside of the UK.
It appears to be associated with a low incidence of GI side effects.

Current evidence suggests an increased risk of cardiovascular thrombotic events with NSAIDS[2].

In patients who are terminally ill the increased risk of renal, cardiovascular and GI toxicity associated with NSAIDs must be weighed against the potential for improved pain control.

For further guidance on the use of NSAIDs consult your local Specialist Palliative Care Team.

STEP 2:

WEAK OPIOIDS
(FOR MODERATE PAIN)

e.g. codeine, dihydrocodeine, tramadol, buprenorphine as 'BuTrans' patches

These opioids have low potency but can be a useful second step for patients with moderate pain. For approximate doses of opioids in chronic usage see Table on page 15.

It is seldom useful to change from one preparation to another (unless to alter side effects). If regular doses do not provide adequate analgesia, move up the ladder to step 3.

Compound preparations of paracetamol and weak opioids may be useful. Only preparations with higher doses of opioids (codeine 30mg, dihydrocodeine 20-30mg) should be used, as the lower strength preparations produce opioid side effects with little analgesia.

Weak opiod drugs

Drug	Adult dose	Dosage forms
Codeine	30–60mg 4 hourly Max 240mg in 24 hours	**Tablets:** 15mg, 30mg, 60mg **Syrup:** 25mg/5ml **Injection:** 60mg/ml (CD)
Co-codamol 30/500 (Codeine 30mg with Paracetamol 500mg)	2 tablets 4–6 hourly Max 8 in 24 hours	**Tablets, capsules, effervescent tablets and granules:** 30/500 Granules: 60/1000 – max 4 daily
Dihydrocodeine	30–60mg 4 hourly Max 360mg in 24 hours (higher dose may be associated with more side effects)	**Tablets:** 30mg, 40mg **MR tablets:** 60mg **Oral solution:** 10mg in 5ml. **Injection:** 50mg/ml (CD)
Dihydrocodeine 20mg with Paracetamol 500mg	2 tablets every 4–6 hours Max 8 in 24 hours	**Tablets:** 20/500
Dihydrocodeine 30mg with Paracetamol 500mg	2 tablets every 4–6 hours Max 8 in 24 hours	**Tablets:** 30/500
Tramadol	50–100mg 4 hourly Max 600mg in 24 hours	**Capsules:** 50mg **Soluble tablets:** 50mg **Orodispersible tablets:** 50mg (Zamadol Melt®) **MR 12 hourly tablets:** 50mg 100mg, 150mg, 200mg **MR 24 hourly tablets:** 150mg, 200mg, 300mg, 400mg **Injection:** 50mg/ml
Buprenorphine BuTrans 7 day patches	Change patch every 7 days	**Patches:** 5 micrograms/hr 10 micrograms/hr 20 micrograms/hr

For analgesic equivalence see conversion table on page 15.

STEP 3:

STRONG OPIOIDS
(FOR MODERATE TO SEVERE PAIN)

First line: Morphine remains the drug of choice

1. Gain Control of Pain.

- 'Immediate' release morphine (elixir or tablets) gives greatest flexibility for dose titration

Starting dose 5mg–10mg four-hourly
(5mg for opioid naïve patients)
i.e. 6 x daily,
Additional p.r.n. doses at the same starting dose may be prescribed up to hourly.

Review the total daily dose of morphine every 24 hours. Titrate the dose to achieve pain relief by increasing in 30–50% increments per day[3,4].

In the elderly or those with renal impairment use smaller doses e.g. 2.5mg four-hourly, with close monitoring (see Chapter 8 Symptom control in patients with renal disease and cardiac failure)

Reassess pain control daily

- A 'log' of treatment kept by patients and carers is helpful in titration

- There is no 'maximum' dose if pain is morphine responsive

- Specialist palliative care advice should be sought in the following circumstances:
  - rapidly escalating dose of morphine
  - morphine exceeds 300mg in 24 hours
  - if the patient develops adverse effects e.g. opioid toxicity (signs are respiratory depression, increasing drowsiness, confusion, myoclonic jerks)

- In patients with less severe pain, or where circumstances dictate, morphine may be initiated as a modified release preparation at the appropriate dose. Use conversion table (page 15) to determine the appropriate starting dose

Always prescribe a laxative when initiating opioid and continue to review bowel habit. See side effects (Page 13)

2. Maintenance.

Once pain is controlled there is a choice of options for maintenance.

- Continue regular immediate release morphine.
- Change to 12 hourly modified release morphine.

- A patient should never be prescribed more than one modified release opioid at a time

Patients on modified release opioids should **always** have available immediate release opioid prescribed p.r.n. for episodes of breakthrough pain.

- The recommended dose of immediate release opioid (usually morphine) prescribed p.r.n. for breakthrough pain is the equivalent of up to 1/6th of the total 24-hour opioid dose

- If the regular dose of opioid is increased, ensure that the p.r.n. breakthrough dose is increased appropriately so that it remains 1/6th of the total daily dose of regular opioid

- Incident pain (e.g. exacerbations of pain on movement) may require faster acting analgesia (see page 26)

- Ensure patients and their carers understand the use of the opioids they are taking and that doses are reviewed regularly

3. If further pain develops

- Reassess cause of pain and treat appropriately (see Pain Assessment on page 2)
- If there is consistent need for frequent breakthrough analgesia, and the pain is opioid sensitive, increase the total daily opioid dose by 30–50% and reassess
- If the proposed dose increase is greater than 30–50% seek advice from specialist palliative care

Morphine preparations

Immediate release oral preparations	**Morphine Sulphate** tablets	**Sevredol® tablets** 10mg (blue), 20mg (pink) and 50mg (pale green) (56 tablet pack)
	Morphine Sulphate Solution	**Oramorph® oral solution** 10mg in 5ml, (100ml, 300ml and 500ml) **Oramorph® concentrated oral solution** 100mg in 5ml (30ml & 120ml both sugar-free and alcohol-free with calibrated dropper)
	Morphine Sulphate suppositories	10mg, 15mg, 20mg, 30mg (12 suppository pack)
12-hourly Morphine Modified Release oral preparations	**Zomorph®** Capsule*	10mg (yellow/clear), 30mg (pink/clear), 60mg (orange/clear), 100mg (white/clear), 200mg (clear) (60 capsule pack)
	Morphgesic® SR tablets	10mg (buff), 30mg (violet), 60mg (orange), 100mg (grey) (60 tablet pack)
	MST Continus® Tablets	5mg (white), 10mg (brown), 15mg (green), 30mg (purple), 60mg (orange), 100mg (grey), 200mg (green) (60 tablet pack)
	MST Continus® Suspension	20mg, 30mg, 60mg, 100mg, 200mg (30 sachet pack) (sachets of granules to mix with water)
24-hour Morphine Modified Release oral preparations	**MXL®** Capsules*	30mg (light blue), 60mg (brown), 90mg (pink), 120mg (green), 150mg (blue), 200mg (red-brown) (28 capsule pack)
Morphine injection	**Morphine sulphate**	10mg/ml, 15mg/ml, 20mg/ml, 30mg/ml (in 1ml and 2ml ampoules) (5 ampoule pack)

**Capsules containing slow release pellets can be opened and sprinkled onto soft food*

SIDE EFFECTS OF OPIOIDS

Certain side effects are common to all opioids. These are readily managed by appropriate dosing and concomitant use of other agents such as laxatives and anti-emetics. True allergic reactions are rare.

Constipation - **Must** be anticipated and prevented in all patients on weak or strong opioids. Constipation may be less severe in some patients with transdermal fentanyl. Regular stimulant laxatives must be commenced at the same time as weak or strong opioids. The dose of laxative required may increase as the dose of opioid increases. (See Chapter 3 Constipation page 41)

Sedation - May occur with the first few doses, but then lessens.

Nausea - Is a common problem (for around 30%) during the first few days of treatment. If it occurs haloperidol, domperidone, cyclizine, or metoclopramide are suitable anti-emetics.
(See Chapter 2 Nausea and Vomiting page 33).

Also recognised are: Dry mouth, itching, sweating, hallucinations and myoclonic jerks.

Psychological Addiction - Is rare in patients taking opioids for their analgesic effects.

Tolerance (i.e. to the analgesic effects) - May occasionally occur, but an increase in dose requirement often reflects an increase in pain due to advancing disease. For patients who exhibit tolerance to a particular strong opioid, switching to another strong opioid might be helpful. *Seek specialist palliative care advice.*

Respiratory Depression - Is not a risk when doses are increased by appropriate increments and the patient is reviewed accordingly. Pain is a physiological antagonist to the central depressant effects of opioids. If pain is relieved by alternative methods e.g. radiotherapy or nerve block, a reduction in opioid dose will be required.

If side effect profile remains too troublesome, a switch to an alternative second line opioid should be considered. *Seek specialist palliative care advice.*

SECOND LINE STRONG OPIOIDS

Alternative strong opioids may be used to try to improve compliance or the side effect profile for patients. Their use must be individually tailored and the following TABLES USED AS GUIDANCE ONLY, together with information in the following text.

Specialist palliative care advice is usually needed when changing from one strong opioid to another. Usually convert to a slightly lower equivalent dose and provide appropriate p.r.n. breakthrough analgesia for titration.

RELATIVE DOSES OF OPIOIDS

Approximate equivalent doses of opioids in chronic usage

Analgesic	Approximate equivalence to 10mg oral morphine on repeated dosing		Duration of action
	Oral dose	IM/SC dose	
Morphine	10mg	5mg	3–6 hours
Alfentanil (injectable)	-	0.3mg = 300 micrograms Seek specialist palliative care advice (see also page 18)	30 minutes IM 60 minutes SC
Buprenorphine (sublingual)	0.2mg = 200 micrograms	-	6–8 hours
Codeine #	100mg	-	3–5 hours
Diamorphine	-	3mg	3–4 hours
Dihydrocodeine	100mg	-	4–6 hours
Fentanyl (injectable)	-	Seek specialist palliative care advice (see also page 19)	1–2 hours IM
Hydromorphone	1.3mg	0.6 mg = 600 micrograms	3–4 hours
Methadone	Prolonged plasma half-life leads to accumulation on repeated dosing. Requires titration under specialist supervision. Seek specialist palliative care advice.		
Oxycodone	5mg*	2.5	4–6 hours
Tramadol	100mg	-	4–5 hours

** Manufacturers guidelines of 2:1 ratio of oxycodone : morphine (note other conversions use a 1.5:1 ratio for oxycodone : morphine)* [5]

 # = Determined for parenteral but also appears to apply to oral route

IM – intramuscular
SC – subcutaneous

For opioid transdermal patch conversions see page 16

Approximate equivalent doses of transdermal opioids[6,7]

Buprenorphine transdermal patch strength (micrograms per hour)	Approximate* oral morphine dose (mg in 24hrs)	Approximate oral codeine dose (mg in 24hrs)
BuTrans® 5	12	120
BuTrans® 10	24	240
BuTrans® 20	48	
Transtec® 35	84	
Transtec® 52.5	126	
Transtec® 70[e]	168	

Fentanyl transdermal patch strength (micrograms per hour)	Approximate* oral morphine dose (mg in 24hrs)
12	30
25	60
50	120
75	180
100	240

**Approximate mid-range oral morphine doses are described here; prescribers should note that manufacturers describe a range of oral morphine doses for each strength of patch.*

Converting between Morphine and Diamorphine

Approximate equivalent doses of oral morphine and subcutaneous morphine and subcutaneous diamorphine:-

3mg oral morphine = 1.5mg SC morphine = 1mg SC diamorphine

These conversion ratios apply to PRN and regular dosing.

- e.g. (1)
  60mg MST BD PO
  = Total Daily Dose oral morphine 120mg PO
  = 60mg SC morphine/24 hrs
  = 40mg SC diamorphine/24 hrs

- e.g. (2)
  30mg Oramorph PO PRN
  = 15mg SC morphine PRN
  = 10mg SC diamorphine PRN

Morphine preparations:

See table on page 12.

Diamorphine

1mg SC diamorphine = 3mg oral morphine = 1.5mg SC morphine

Diamorphine was traditionally used as the first line injectable strong opioid as it is more water soluble than morphine. Morphine sulphate injection is now used in many centres as the first line injectable strong opioid.

Diamorphine preparations:
Injection: 5mg, 10mg, 30mg, 100mg, 500mg in packs of 5 ampoules.

Oxycodone

10mg oral oxycodone = 5mg SC oxycodone = 10mg SC morphine = 20mg oral morphine

Oxycodone has good oral bioavailability. The example above illustrates the dose conversion when oxycodone is regarded as being 2 times more potent than oral morphine. Oxycodone is an alternative option if morphine is not tolerated. Care should be taken to ensure clarity when prescribing immediate release capsules or modified release tablets. The modified release tablets also deliver a small dose which is immediate release.

Oxycodone preparations:
Immediate release (OxyNorm®) capsules, for p.r.n. use: 5mg (orange/beige), 10mg (white/beige), 20mg (pink/beige) (packs of 56)
Oral solution (OxyNorm®) : 1mg/ml (250ml)
Concentrated oral solution (OxyNorm®): 10mg/ml (120ml)
Modified release tablets (OxyContin®) for 12-hourly administration: 5mg–light blue, 10mg–white, 15mg–grey, 20mg–pink, 30mg – brown, 40mg–yellow, 60mg–red, 80mg–green, 120mg–purple (packs of 56).
Injection (Oxynorm® injection) 10mg/ml: 1ml, 2ml ampoules. 50mg/ml: 1ml ampoules.
Targinact®: The opioid antagonist naloxone is added to counteract opioid induced constipation by blocking the action of oxycodone at opioid receptors locally in the gut.

Seek advice from specialist palliative care before prescribing.
(See Chapter 3 Constipation page 41).

Hydromorphone

1.3mg oral hydromorphone = 0.6mg SC hydromorphone = 10mg oral morphine = 5mg SC morphine

An alternative if morphine is not tolerated because of adverse effects under specialist guidance. Immediate and modified release capsules may be opened and sprinkled onto food.

Hydromorphone preparations (Palladone®):
Immediate release capsules: 1.3mg (orange/clear), 2.6mg (red/clear) for p.r.n. use. (packs of 56)
Modified release capsules: 2mg (yellow/clear), 4mg (pale blue/clear), 8mg (pink/clear), 16mg (brown/clear), 24mg (dark blue/clear) for 12-hourly administration.
Hydromorphone injection (Martindale Products): 10mg/ml, 20mg/ml, 50mg/ml (unlicensed, available on named patient basis).

Alfentanil – Seek specialist palliative care advice

1mg SC alfentanil = 10mg SC diamorphine = 30mg oral morphine = 15mg SC morphine

Suitable parenteral opioid for use in advanced renal disease under specialist guidance. Alfentanil has a short duration of action which limits its use for breakthrough analgesia.

Note very different dose conversions than Fentanyl (see page 15).

Alfentanil and Fentanyl are different drugs.

Alfentanil preparations:
Injection (Rapifen®) 500 microgram per ml, 2ml, 10ml ampoules
Intensive Care Injection 5mg per ml, 1ml ampoules to be diluted before use.

Methadone

Always seek specialist advice.

Fentanyl (INJECTABLE) – Seek specialist palliative care advice - see page 21 for Transdermal fentanyl

150 micrograms SC fentanyl = 10 mg SC diamorphine =morphine 30 mg oral = 15 mg SC morphine

Suitable parenteral opioid for use in advanced renal disease under specialist guidance.

Also available as a transdermal patch (see pages 21) and as immediate release preparations (buccal, intranasal, sublingual and submucosal formulations) for incident pain (see page 26).

Note very different dose conversions than Alfentanil (see page 15).

Alfentanil and Fentanyl are different drugs.

Please be aware that when prescribing a syringe driver for fentanyl that the dose is ***micrograms per 24 hours*** *whilst when administering a transdermal patch the dose is* ***micrograms per hour.***

Fentanyl injectable preparations:
Injection (generic) 50 microgram per ml, 2ml and 10 ml ampoules
Fentanyl (Sublimaze®) 50 microgram per ml, 10 ml ampoules

Tapentadol

A novel analgesic combining mu opioid properties and noradrenaline reuptake inhibition. At the time of writing there is limited experience of this in palliative care. *Seek specialist palliative care advice.*

TRANSDERMAL OPIOID PREPARATIONS

Transdermal opioid patches may be considered when patients have an opioid-responsive pain and where pain control is stable, as an alternative to morphine, (ie. a 2nd line strong opioid) where the patient is...

- unable to tolerate morphine, unable to take oral medication, e.g. dysphagia, vomiting
- where drug compliance needs to be improved

BUT NOT in situations where the pain is acute, and rapid dose titration is required.

When applying a new patch consider writing the date (and time) on the patch in order to identify when the next patch is due to be applied. This may be useful as an aide memoir or when the patient is moving between different care settings.

Cautions when using transdermal opioid patches:

- If the patient has not had strong opioids
- In patients previously on doses of oral morphine (or equivalent opioid) less than 60mg/24hr
- In pyrexial patients where rate of absorption may be unpredictable
- With poor adherence of patches, e.g. patient with sweats or when applied to the chest wall of patients who are cachectic
- During the dying phase – seek specialist palliative care advice

Transdermal Fentanyl Patches

For approximate equivalent doses see page 16.

Fentanyl is a strong opioid, available in a patch applied to the skin, for transdermal administration over 72 hours for chronic cancer pain. Both matrix and reservoir patch formulations are available (see page 24). Patches should be prescribed by their brand name or specify 'matrix' or 'reservoir' to avoid confusion.

Contraindications:
Sensitivity to fentanyl or silicone medical adhesive.

Initial dose:
Convert from the oral morphine dose using the table on page 16.

Patch Application

- Patch should be applied to dry non-hairy non-irritated, non-irradiated skin on torso or upper arm. Replacement patch should be sited on a different area. Avoid previous area for several days
- After application of the first patch, plasma levels rise for 24 hours, analgesic levels are reached by 6-12 hours and a steady state is reached by the time of application of the second patch
- The patch should be replaced every 72 hours
- Currently 12 microgram per hour patches are only licensed for titration of doses, rather than initiating transdermal fentanyl
- When converting doses greater than 100 microgams per hour fentanyl seek specialist palliative care advice

Starting fentanyl patches, converting from oral morphine

An immediate release opioid preparation should always be available p.r.n. for breakthrough pain.

Original regular oral morphine dosing frequency:	**Fentanyl patch to be applied:**	**Original regular oral morphine dose continued after patch application for:**
Immediate release regular morphine (liquid or tablets)	At any convenient time	12 to 24 hours
12- hourly modified release morphine	At the same time as taking the final 12 hourly morphine dose	*No further modified release morphine*
24-hourly modified release morphine	12 hours after taking the final 24-hourly morphine dose	*No further modified release morphine*

Switching to an alternative opioid from transdermal fentanyl

Before removing an opioid patch and changing to an alternative opioid consider carefully the reasons for doing this.

Carrying out this conversion correctly can be challenging and it is advisable to seek specialist palliative care advice.

On removal of the patch, it takes approximately 17 hours for serum concentration of fentanyl to reduce by 50% and this must be considered when converting. Different methods of conversion are practised. REVIEW the patient regularly during the change over period.

If converting a patient with renal failure from transdermal fentanyl to an alternative opioid, always seek specialist advice.

Options are given below:

<table>
<tr><th colspan="2">Discontinuing the patch if the patient's pain is controlled</th></tr>
<tr><td>EITHER
Change to oral opioid:</td><td>• Remove patch and document the time of removal.
• Prescribe a starting dose of oral opioid at the approximate equivalent dose (for that patch) to be commenced 12 hours after the time the patch has been removed
• Ensure adequate dose of oral immediate release opioid is available p.r.n. for breakthrough pain</td></tr>
<tr><td>OR
Change to subcutaneous opioid e.g. diamorphine or morphine or oxycodone infusion</td><td>• Remove patch and document the time of removal.
• Prescribe a starting dose of subcutaneous opioid over 24 hours at the approximate equivalent dose (for that patch) to be commenced 12 hours after the time the patch has been removed
• Ensure adequate dose of subcutaneous opioid is available p.r.n. for breakthrough pain</td></tr>
<tr><th colspan="2">Discontinuing the patch if the patient's pain is uncontrolled:</th></tr>
<tr><td colspan="2">Consider why the pain was not responding and address any other issues. Consider seeking specialist palliative care advice

Administer an immediate release opioid (e.g. p.r.n. oral morphine or SC opioid). Re-titrate to the patient's requirements</td></tr>
<tr><th colspan="2">Continuing the patch if the patient's pain is uncontrolled:</th></tr>
<tr><td>Add an appropriate increment of opioid by the subcutaneous route whilst continuing the patch</td><td>In some areas, it is practice to continue with fentanyl patch administration, adding an appropriate dose of opioid via the subcutaneous route. Consult local guidelines</td></tr>
</table>

Transdermal fentanyl patch preparations:[8]
For approximate equivalent doses see page 16

Transdermal fentanyl patches releasing '25', '50', '75', and 100' micrograms of fentanyl per hour over 72 hours. A 12 microgram per hour fentanyl matrix formulation patch is available, licensed for titration of patients already on fentanyl patches.

In the matrix formulation patch (Durogesic D Trans®) fentanyl is contained throughout the patch.

In the reservoir formulation patch (Tilofyl®) – fentanyl is contained in a gel reservoir in the middle of the patch and should not be cut. When prescribing, patches should be prescribed by their brand name or specify 'matrix' or 'reservoir' to avoid confusion.

Fencino® (matrix patch with aloe vera oil extract): 12, 25, 50, 75, 100 micrograms/72hours
Durogesic® (matrix patch): 12, 25, 50, 75, 100 micrograms/72hours
Fentalis® (reservoir patch): 25, 50, 75, 100 micrograms/72hours
Matrifen® (matrix patch): 12, 25, 50, 75, 100 micrograms/72hours
Mezolar® (matrix patch): 12, 25, 50, 75, 100 micrograms/72hours
Osmanil® (matrix patch): 12, 25, 50, 75, 100 micrograms/72hours
Tilofyl® (reservoir patch): 12, 25, 50, 75, 100 micrograms/72hours
Victanul® (matrix patch): 25, 50, 75, 100 micrograms/72hours

Transdermal Buprenorphine Patches

For approximate equivalent doses see page 16

Buprenorphine is a partial opioid agonist. The transdermal preparation releases the patch strength in micrograms per hour of buprenorphine over several days.

The manufacturers recommend changing the Transtec® patch twice weekly. It takes at least 24 hours for full analgesic effect. After removal, plasma concentrations of buprenorphine will be halved after 30 hours.

A transdermal buprenorphine patch formulation containing a lower dose of buprenorphine is available (BuTrans®, releasing between 5 and 20 micrograms per hour of buprenorphine over 7 days). These buprenorphine patches may be of some benefit in patients who have difficulties in taking oral medication and have low analgesic requirements.

Transdermal buprenorphine patch preparations:
Transtec® patches releasing '35', '52.5', or '70' micrograms buprenorphine per hour as a twice weekly patch.
BuTrans® patches releasing '5', '10' or '20' micrograms of buprenorphine per hour over 7 days.

General information about opioid analgesic patch preparations

- Laxatives may need to be reduced and titrated to need as transdermal fentanyl and buprenorphine are less constipating than other opioids
- Replace the patches at the same time of day (as indicated on the product information)
- Vary the site of application with each change
- Apply to clean, dry, undamaged, non-hairy, flat areas of skin
- Never apply heat over the patch as this will increase absorption. Excessive heat should be avoided e.g. sauna, infra-red radiation
- Dispose of patches by folding in half, sticky side together, and putting in safe disposal unit e.g sharps box
- Check that patches stick well. Sweating, crinkling and lifting at edges can make pain control inadequate
- Patients can shower or swim, but often a vapour-permeable film dressing needs to be placed over the patch to aid adhesion

INCIDENT PAIN

This is a specific type of breakthrough pain related to a particular activity, e.g. micturition, wound dressing changes or movement.

First line choice of analgesia for predictable breakthrough pain should be an immediate release opioid, usually the same opioid as that prescribed as a modified release preparation. Immediate release preparations are available as described previously.

TRANSMUCOSAL FENTANYL PREPARATIONS

Seek specialist palliative care advice before prescribing immediate release fentanyl preparations.

Various transmucosal fentanyl preparations are available[8] with similar onset of action and alternative routes of delivery:-

- buccal tablets
- intranasal spray
- sublingual tablets
- transmucosal lozenges

The most appropriate route of administration will depend on the patient's preference, their manual dexterity and other clinical circumstances. These medications all require careful individual dose titration according to the product literature and patient response.

Transmucosal fentanyl preparations are licensed for breakthrough pain in patients receiving opioid therapy for chronic cancer pain. Such patients should already be receiving a strong opioid for background pain and should have been receiving oral morphine for at least 60mg /24hours (or equivalent dose of an alternative strong opioid) for the previous week before being commenced on an immediate release fentanyl preparation.

Transmucosal fentanyl preparations:
Abstral® sublingual tablets:
100, 200, 300, 400, 600 and 800 microgram tablets
Actiq® lozenges with applicator:
200, 400, 600, 800, 1200, 1600 micrograms lozenges
Effentora® buccal tablets:
100, 200, 400, 600 and 800 microgram tablets
Instanyl® nasal spray:
50, 100, 200 microgram metered sprays
PecFent® nasal spray:
100 , 400 microgram metered sprays

Abstral® (Summary of Product Characteristics - SPC)

- Sublingual tablets should be placed under the tongue at the deepest part and dissolved without chewing or sucking
- Patients should not eat or drink until tablet has dissolved but can moisten mouth with water before having Abstral®
- Absorption takes 30 minutes and pain should be relieved in 15-30 minutes
- If pain is not relieved a second tablet can be used after 15-30 minutes
- No more than 2 tablets for each episode of pain (maximum dose 800 micrograms per pain episode)

Actiq® (SPC)

- A compressed lozenge unit containing fentanyl and integral oro-mucosal applicator
- Dose range starts at 200 micrograms.
- Unit is placed against buccal mucosa and consumed over a 15 minute period
- The unit needs to be constantly rotated against the buccal mucosa for successful absorption and should not be sucked and swallowed

Effentora® (SPC)

- Buccal tablets should be held between the cheek and gum near a molar tooth
- The tablet will effervesce and should be absorbed in 14-25 minutes.
- Effentora® can also be dissolved under the tongue
- Adequate analgesia should occur within 30 minutes, a second dose can be used after 30 minutes but no more than 2 doses per episode of pain (maximum 800 micrograms per pain episode) and leave at least 4 hours between treatments of pain during titration

Instanyl® (SPC)

- A pump action nasal spray used in one nostril, if pain is not relieved a second dose can be used after 10 minutes, however patient must wait 4 hours before a further dose

PecFent® (SPC)

- A pump action nasal spray
- Initial dose is one spray (100 micrograms)
- Patient must wait another 4 hours at least before treating a further pain episode with PecFent®

ADJUVANT ANALGESIA
(usually used in conjunction with classical analgesics)

Origin Of Pain	Drugs / Treatment	Dose & Preparations
Bone pain	NSAIDs Bisphosphonates Steroids Consider radiotherapy	See NSAID section (page 4) Seek specialist advice See Chapter 4 Corticosteroids Seek specialist advice
Neuropathic pain	**Step 1** Antidepressant (tricyclic) e.g. amitriptyline OR anticonvulsant **Step 2** Antidepressant (tricyclic) PLUS anticonvulsant For nerve compression pain consider steroids (see Chapter 4 Corticosteroids page 49) also consider Trancutaneous Nerve Stimulation (TENS) or nerve block	
	Amitriptyline *(antidepressant)*	**Oral:** 10–25mg at night increasing slowly up to 75mg nocte **Preparations:** Tablets 10, 25, 50mg. Solution 25mg/5ml and 50mg/5ml
	Gabapentin *(anticonvulsant)*	**Oral:** 100–300mg nocte increasing gradually. Usual dose range 900–1800mg **Preparations:** Capsules 100mg, 300mg, 400mg. *(Can be opened and sprinkled on food or administered via PEG tube for patients with impaired swallow)* Tablets 600mg, 800mg
	Pregabalin *(anticonvulsant)*	**Oral:** 150mg daily in divided doses (25–50mg bd in frail patients) increasing gradually to maximum daily dose of 600mg in divided doses **Preparations:** Capsules 25mg, 50mg, 75mg, 100mg, 150mg, 200mg, 300mg
	Sodium Valproate *(anticonvulsant)*	**Oral:** 200mg–500mg nocte increasing to 1g daily if necessary **Preparations:** Tablet EC 200mg and 500mg. Crushable tablets 100mg. Oral Solution 200mg/5ml

Origin Of Pain	Drugs / Treatment	Dose & Preparations
Neuropathic pain (cont.)	**Carbamazepine** *(anticonvulsant)*	**Oral:** 100mg BD increasing gradually if tolerated up to 1200mg daily in divided doses if necessary **Preparations:** Tablets 100mg, 200mg, 400mg. Chewable tablets 100mg and 200mg. MR Tablets 200mg, 400mg and Oral liquid 'sugar free' 10mg/5ml. Suppositories 125mg (equivalent to 100mg tablets)
	Clonazepam *(anticonvulsant)*	**Oral:** 500 micrograms nocte; increasing gradually to 2mg nocte. **Subcutaneously:** 500 micrograms to 2mg nocte. May also be administered via a continuous subcutaneous infusion. **Preparations:** Tablets 500 micrograms, 2mg **Injection:** 1mg/1ml, 1ml ampoule
	Duloxetine *(antidepressant)*	**Oral:** 60mg OD (consider 30mg OD orally in frail patients) increasing gradually up to maximum daily dose of 120mg in divided doses. **Preparations:** Cymbalta® 30mg capsules and 60mg capsules
	Lidocaine plaster	Consider in localised neuropathic pain 5% plaster; use up to three plasters over 12hrs per 24hrs **Preparations:** Versatis® 5% medicated plaster
	Capsaicin	Consider in localised neuropathic pain **Cream: Topical:** 0.025% and 0.075% cream. Apply using gloves 2 to 4 times daily. Advice to patients: Burning sensation can occur during initial treatment. **Patch:** 8%. Qutenza® Apply for one hour only. Specific training and licence for use is required

Origin Of Pain	Drugs / Treatment Dose & Preparations	
Raised intracranial pressure	**Steroids**	*See Chapter 4 Corticosteroids page 49*
Hepatomegaly	**Steroids, NSAIDs**	
Enlarging tumours	Consider radiotherapy	*Seek specialist advice*
Muscle spasm	**Diazepam**	**Diazepam Oral:** 2–10mg daily increase if necessary. **Preparations:** Tablets 2mg, 5mg and 10mg Oral solution - 2mg/5ml
	Baclofen	**Baclofen Oral:** 5mg TDS after food (gradually increase to a max total daily dose of 100mg if necessary) **Preparations:** Baclofen tablets 10mg. Oral solution 'sugar free' 5mg/5ml
Smooth muscle spasm / colic	**Hyoscine butylbromide**	**SC:** 20mg stat, or SC infusion 60mg up to 120mg in 24 hours. Tablets are poorly absorbed **Preparations:** Tablets 10mg, Injection, 20mg/ml
	Glycopyrronium	**SC:** 200 micrograms stat and SC infusion in 24 hours 600 micrograms–1200 micrograms
Tenesmus	Treat as for Neuropathic pain *see pages 29-30*	
	Nifedipine	**Oral:** 5–20mg BD **Preparations:** Capsules 5mg, 10mg. Tablets SR 10mg, 20mg
	Consider nerve block	

This table is not all inclusive and further specialist palliative care advice should be sought if necessary

References

1. Joint Formulary Committee (British Medical Association and Royal Pharmaceutical Company). *British National Formulary(BNF 62)*. bnf.org 2011.

2. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011:p298.

3. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011:p300.

4. NPSA MANAGING HIGH DOSE OPIOIDS.

5. Klepstadt P, Kassa S, Borchgrevink PC. "Starting step III opioids for moderate to severe pain in cancer patients: Dose titration: A systematic review" Palliat Med. 2011; 25(5): p424-430.

6. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011:p424.

7. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011:p388.

8. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011:p398.

9. http://www.medicines.org.uk/emc/ Accessed October 2011.

Chapter 2
Nausea and vomiting

The choice of antiemetic will be influenced by the cause(s) of nausea and vomiting. The oral or subcutaneous routes are the preferred routes in Palliative Care. Thorough patient assessment includes full history, examination and investigations where appropriate.

Causes to consider:

- Abnormal biochemistry (e.g. hypercalcaemia, uraemia or hyponatremia) - Treat where appropriate
- Drugs (e.g. opioids, bisphosphonates, metronidazole, anticonvulsants) - Anti-emetics may be necessary for a few days when opioid treatment is initiated. Not all patients require this
- Avoid drugs with anticholinergic effects in patients with gastric stasis (e.g. hyoscine, antidepressants, cyclizine)
- Constipation – Prevent and treat aggressively
- Gastritis - Use a proton pump inhibitor e.g. lansoprazole
- Chemotherapy induced nausea & vomiting – A short course of $5HT_3$-receptor antagonists may be appropriate
- Raised intracranial pressure
(See Chapter 4 Corticosteroids page 49)

- Anxiety: Psychological care with or without benzodiazepines
- Oropharyngeal thrush: A course of antifungal treatment

CHANGING ANTI-EMETICS

1. Ensure the anti-emetic is used regularly, to a maximum dose and for a sustained period of time before changing (e.g. 24hrs)
    - If first line drug is ineffective, change to an alternative first line drug (see table on page 35)
2. If first line drug was partially effective, another complementary anti-emetic drug may be added (see Second line treatment)
3. Haloperidol with cyclizine is often effective, especially by continuous subcutaneous infusion
4. Cyclizine and other anticholinergic drugs may antagonise some of the effects of metoclopramide and other prokinetic agents. The combination should therefore be avoided if possible
5. Re-assess patient

A continuous subcutaneous infusion via a syringe driver may be considered for patients

- who are vomiting for longer than 24 hours or
- who have nausea unresponsive to appropriate oral anti-emetics

Non-pharmacological measures may complement medical management and may be particularly helpful in drug-resistant nausea and vomiting, e.g. advice on posture and diet, acupuncture, complementary therapies, psychological treatments such as anxiety management

Anti-emetics

Cause of nausea	Suggested drug	Dose and route
1. First line - prescribe a single agent based on underlying cause (see row below in this table). Use regularly and to maximum dose before changing. If one drug is ineffective see number 2 below in this table.		
Drug induced and biochemical	**Haloperidol** *(most potent dopamine D2 receptor antagonist)*	**Oral:** 1.5–3mg OD-BD **SC:** 2.5–5mg/24hr *Preparations* **Tablets:** 500 micrograms, 1.5mg, 5mg, 10mg **Oral solution:** 1mg/ml, 2mg/ml **Injection:** 5mg/1 ml, 20mg/2ml
Evidence of gastric stasis	**Metoclopramide** *(dopamine D2 receptor antagonist)* Or	**Oral:** 10mg–20mg TDS before meals **SC:** 30–100mg/24hr **Preparations** **Tablets**: 10mg **Oral solution:** 5mg/5ml **Injection:** 10mg/2ml
	Domperidone *(dopamine D2 receptor antagonist; does not cross blood brain barrier so fewer side effects)*	**Oral:** 10mg–20mg QDS **PR:** 30–60mg TDS **Preparations** **Tablets:** 10mg **Suspension:**5mg/5ml **Suppositories**: 30mg
If GI tract involvement or cerebral tumour, or if the above have not worked	**Cyclizine** *(anticholinergic antihistamine)*	**Oral:** 50mg TDS **SC:** 150mg / 24hours **Preparations** **Tablets:** 50mg **Injection:** 50mg / 1ml
2. Second line – Add another first line agent (e.g. cyclizine +/- haloperidol) or change to a 'broad spectrum' agent		
Broad spectrum anti–emetic useful if multiple possible causes	**Levomepromazine** *(acts at multiple receptor sites: dopamine D2, anticholinergic antihistamine)*	**Oral:** 6mg–25mg nocte **SC:** 6.25–25mg/24h **Preparations** **Tablets:** 25mg, 6mg (6mg unlicensed available on named patient basis). **Injection:** 25mg/1ml

Anti-emetics continued

Cause of nausea	Suggested drug	Dose and route
3. Third line – if other drugs are not controlling symptoms try:		
Chemotherapy and radiotherapy induced nausea and vomiting	3 day course of $5HT_3$-receptor antagonist – for example ondansetron and granisetron	**Ondansetron Oral:** 8mg OD- BD **SC:** up to 24mg over 24 hours **Granisetron Oral SC:** 1–2mg per 24 hours **Preparations** **Ondansetron** **Tablets and dispersible tablets:** 4mg, 8mg **Syrup:** 4mg/5ml **Suppositories:** 16mg **Injection:** 4mg/2ml, 8mg/4ml **Granisetron** **Tablets:** 1mg, 2mg **Solution:** 1mg/5ml **Injection:** 1mg/1 ml, 3mg/3ml
Nausea and vomiting caused by moderately- to highly- emetogenic chemotherapy	Neurokinin receptor antagonists for example Aprepitant	**Aprepitant** 80mg–125mg OD PO **Capsules:** 80mg, 125mg
Raised intracranial pressure or intractable nausea and vomiting	Steroids	*See Chapter 4 Corticosteroids page 49*
4. For bowel obstruction see page 37		

THE MEDICAL MANAGEMENT OF INTESTINAL OBSTRUCTION

- It is always worth performing a rectal examination to rule out constipation before confirming a diagnosis of intestinal obstruction

- Development of malignant bowel obstruction can be a slow and insidious process with episodes of paralytic ileus and mechanical obstruction over days to weeks

- Careful assessment of the clinical symptoms/signs is essential for the most appropriate management

- **Paralytic ileus** (e.g. electrolyte disturbance or autonomic dysfunction) may mimic intestinal obstruction but is potentially reversible. Colic is usually not a feature in such patients and clinical examination may reveal absence of or reduced bowel sounds

- **Mechanical intestinal obstruction** (e.g. as a result of adhesions or tumour) will usually present with colic and clinical examination may reveal increased bowel sounds. This can generally be divided into:-
  - **Subacute or partial obstruction** (intermittent symptoms of colicky abdominal pain, nausea and vomiting, reduced frequency of passing flatus and opening bowels) which may resolve for a limited time
  - **Complete obstruction** (sustained symptoms of colicky abdominal pain, nausea and vomiting and absence of flatus and stool) which is irreversible

- Surgical intervention or stenting may be helpful for a small number of patients. A palliative bypass with or without stoma formation may be indicated if there is single level obstruction. Diffuse intra-abdominal disease or ascites are contraindications for palliative surgery

- The main principles of management are to control nausea, colic and other abdominal pain using drugs shown in the table on page 39

- It is possible to keep a patient's symptoms controlled with subcutaneous medications given via a syringe driver, (see table page 86-89). Some patients may prefer occasional vomits (as long as nausea is well controlled) to avoid naso-gastric tube (NGT) insertion. Other patients with obstruction and large volume vomiting may prefer NGT insertion to avoid persistent vomiting.

- Thirst can be managed with regular oral care and ice cubes to suck and may avoid the need for intravenous or subcutaneous saline infusion

- If symptoms are thought to be primarily due to paralytic ileus rather than mechanical obstruction the combination below can be effective in restoring bowel function:-

    - metoclopramide and dexamethasone (for dose see Chapter 4 Corticosteroids)

Do not use metoclopramide or 5HT3 antagonists in patients with intestinal colic

- When complete intestinal obstruction occurs, prokinetic agents and bulk-forming or stimulant laxatives are contra-indicated.

- Patients may be able to tolerate small amounts of food and drink, if the nausea is well controlled. A low residue diet may be better tolerated (soft low fibre foods)

The medical management of intestinal obstruction

Symptom	Drug	Dose via Syringe Driver subcutaneously
Nausea	**Metoclopramide** (only in absence of colic) or **Haloperidol** and/or **Cyclizine**	30-100mg/24hr 2.5–5mg/24hr 100–150mg/24hr
Colic	**Hyoscine butylbromide** or **Glycopyrronium**	60–120mg/24hr 600 microgram –1.2 mg/24hr
Abdominal pain	**Diamorphine** or alternative strong opioid may be continued via a non-oral route.	Titrate/convert according to pain requirements See Chapter 1 Pain and page 88
Vomiting with large volume of intestinal secretions (1 or 2)	**1. Hyoscine butylbromide** **2. Octreotide** 2nd line (if hyoscine butylbromide ineffective with specialist advice) **3.** A three day course of **5HT$_3$ -receptor antagonists** (see page 30)	60–120mg/24hr 500microgram/24hr initially. Can be increased to 800 micrograms/24hrs if necessary If ineffective stop after 48 hours If octreotide is effective titrate to lowest effective dose

For syringe driver drug compatibility see Appendix I.

References

Joint Formulary Committee (British Medical Association and Royal Pharmaceutical Company). *British National Formulary (BNF 62).* bnf.org 2011.

Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011.

Chapter 3
Constipation

Constipation is a common cause of distress. Prevention is better than waiting until treatment is needed.

Constipation should be anticipated in all patients taking opioids or anticholinergics (e.g. tricyclic antidepressants, cyclizine, etc) and those who are either inactive or have a reduced fluid or dietary fibre intake. Lack of privacy and pain may be contributing factors.

Effects of chronic constipation
Anorexia, occasional vomiting, colic, tenesmus, overflow diarrhoea, urinary retention, confusion.

TREATMENT OF EXISTING CONSTIPATION

Before prescribing laxatives for established constipation

- Rule out bowel obstruction. If bowel obstruction is suspected seek further advice
- Consider underlying causes e.g hypercalcaemia, drugs

In spinal cord compression:-

- If normal sphincter sensation and function is present, titrate laxatives as normal, avoid excessive softening
- If normal sphincter sensation and function is absent, bisacodyl or sodium acid phosphate (Carbalax) suppositories should be prescribed, aiming for a planned bowel action every two to three days

Treatment of existing constipation

Clinical finding	Management
Is the rectum impacted? • Yes with hard stool	Lubricate using glycerol suppositories or soften with oil enema followed by stimulant e.g phosphate enema once softened Once impaction is resolved commence or increase a laxative combining stimulant and softening actions
• Yes stool is soft	Use a rectal stimulant, eg bisacodyl suppositories or phosphate enema. Once impaction is resolved commence or increase a laxative combining stimulant and softening actions
• If no success using measures above	Commence a Macrogols preparation at faecal impaction dose Manual evacuation (consider sedation)
Is the rectum empty?	May still be constipated with a loaded colon Stimulant laxative may be of benefit (but avoid in patients with severe colic)

LAXATIVES

- Laxatives should be prescribed on a regular basis as soon as weak or strong opioids are prescribed (except those with ileostomy or diarrhoea), with full explanation to the patient

- Relatively high doses may be needed - the laxative dose may need increasing as the dose of opioid is increased but this should be titrated to the individual's requirements

- Many ill patients will not tolerate high fibre diet or bulk forming laxatives and these are not usually recommended in palliative care. Many patients become expert at adjusting their own laxatives. However a regular regime will be essential for those on opioids

- A combination of stimulant laxative with a softening/ osmotic agent is a good first choice (see table pages 44–46)

- 25% of patients on oral laxatives may still need rectal measures at times

- In patients recognised to have significant and ongoing constipation as a result of opioid use despite measures above, specialist advice may be sought regarding the use of drugs such as the Oxycodone/Naloxone combination (Targinact®) see page 17 or the opioid antagonist methylnaltrexone (Relistor®)

Laxative doses and preparations available

ORAL PREPARATIONS

Stimulants Increase intestinal motility. Often cause abdominal cramp / colic	
Senna *Onset of action* *Starting dose* *Formulations*	 6–12 hours 7.5mg od or bd Tablets, syrup, and granules
Bisacodyl *Onset of action* *Starting dose* *Formulations*	 10–12 hours 5–10mg nocte Tablets
Sodium picosulphate *Onset of action* *Starting dose* *Formulations*	 6–14 hours 5–10mg nocte. Stimulant laxative indicated where other stimulant laxatives have failed Capsules and elixir
Softeners Faecal softening by acting as a surface wetting agent	
Docusate sodium (also stimulant action in higher doses) *Onset of action* *Starting dose* *Formulations*	 1–3 days 100-200mg bd. Stimulant laxative indicated where other stimulant laxatives have failed Capsules and elixir

ORAL PREPARATIONS continued

Combined softeners and stimulants
Combines faecal softening and increased intestinal motility.

Dantron stains urine red (warn patient) and can also cause perianal skin irritation, especially in incontinent patients. It may be prudent to avoid dantron-containing products in dying patients or those who are faecally incontinent or have a colostomy.

Co-danthrusate (dantron 50mg, docusate 60mg)	
Onset of action	6–12 hours
Starting dose	1–2 capsules or 5–10mls at bedtime
Formulations	Capsules 50/60, suspension 50/60 in 5ml
Co–danthramer (dantron 25mg, poloxamer '188' 200mg)	
Onset of action	6–12 hours
Starting dose	2 capsules or 10ml at bedtime
Formulations	Capsules and elixir 25/200 5ml suspension = 1 capsule
Strong co–danthramer (dantron 37.5mg poloxamer '188' 500mg)	
Onset of action	6–12 hours
Starting dose	2 capsules or 5ml suspension at bedtime. 5ml co–danthramer strong suspension = 15ml co–danthramer suspension
Formulations	Capsules and elixir 37.5/500 5ml strong suspension = 2 strong co-danthramer capsules

ORAL PREPARATIONS continued

Osmotic agents - oral Increase the amount of water in the large bowel	
Macrogol preparations may be preferable to lactulose if additional softener is required. Up to 8 sachets a day may be used in faecal impaction	
Onset of action	1–2 days
Starting dose	1 sachet dissolved in 125ml water
Formulations	**Macrogol oral powders** (brands include Movicol®, Laxido® Orange, Molaxole®)
Lactulose alone is not effective for opioid induced constipation and should not be used in patients with inadequate fluid intake. Lactulose can cause flatulence & abdominal cramps	
Onset of action	1–2 days
Starting dose	15ml bd
Formulations	Solution
Magnesium hydroxide	
Onset of action	3–6 hours
Starting dose	10–20ml od
Formulations	Mixture

RECTAL PREPARATIONS

Stimulants Local stimulation of intestine.	
Bisacodyl suppositories	
Onset of action	20–60 minutes
Starting dose	1 suppository
Glycerol suppositories	
Onset of action	1–6 hours
Starting dose	1 suppository
Softeners Lubricate and soften faeces	
Arachis oil enemas *(Do not use in patients with peanut allergy)*	
Onset of action	Normally administered overnight
Starting dose	130ml (warm before use)
Docusate sodium enema	
Onset of action	15–60 minutes
Starting dose	Dose 10g
Osmotic agents Increase the amount of water in the large bowel.	
Phosphate enemas	
Onset of action	15–60 minutes
Starting dose	1 enema
Sodium citrate enema	
Onset of action	15–60 minutes
Starting dose	5ml

References

Joint Formulary Commitee (British Medical Association and Royal Pharmaceutical Company). British National Formulary (BNF 62). bnf.org 2011.

Twycross R, Wilcock A (Eds). Palliative Care Formulary: Fourth Edition. Palliativedrugs.com Ltd 2011: pp 35–51.

Chapter 4
Costicosteroids

- Patients with advanced malignancy may benefit from corticosteroids for a variety of symptoms. There should always be a clear indication to justify starting corticosteroids and benefits should always be balanced against the side effects, such as diabetes, proximal myopathy, candidiasis, osteoporosis

- Doses should be tailored to the individual and regularly reviewed, as responses may not be prolonged

- Each stage of the corticosteroid plan should be documented, e.g. indication(s), expected outcome(s), and expected response time. Risk to benefit should be considered for each patient[1]

- Dexamethasone is the corticosteroid of choice. There are however few trials on which to base guidance for indications and dosing. Dose ranges in common use are shown in the table (page 50)[2,3]

Corticosteroid doses

Indications	Treatment and dose
Neurological Spinal cord compression or cauda equina syndrome (see page 66)	Dexamethasone 16mg/day
Symptoms secondary to cerebral tumour(s). (Headache alone often requires lower dose)	Dexamethasone 16mg/day
Nerve compression pain	Dexamethasone 8mg/day
Respiratory Superior vena caval obstruction (see also page 63); Pneumonitis after radiotherapy; Lymphangitis carcinomatosa (see Chapter 5 Palliation of Breathlessness); Large airways obstruction (see also 'stridor' page 58)	Dexamethasone 16mg/day
Gastrointestinal Tract [4] Dysphagia. Intestinal obstruction	Dexamethasone 6-16mg/day
Rectal discharge	Rectal corticosteroid preparations e.g. hydrocortisone or prednisolone foam enema, or prednisolone suppositories. Once at night
Miscellaneous Ureteric obstruction/pelvic disease.	Dexamethasone 6–16mg/day
Pain from hepatic metastases Bone pain (occasionally helpful)	Dexamethasone 4–8mg/day
Anti-emetic	Dexamethasone 4–8mg /day
Anorexia*	Dexamethasone 2–4mg / day Prednisolone 15–40mg/day

* a progestogen may be more appropriate as an agent to treat anorexia for long term use, for example:

Megesterol acetate 80–160mg OD PO in the morning
or Medroxyprogesterone acetate 400mg OD to BD PO in the morning

- Prescribe as a single morning dose or twice daily doses with last dose before 2 pm. (This reduces suppression of hypo-pituitary-adrenal axis and may prevent corticosteroid induced insomnia)

- Higher than usual doses may be required for patients on phenytoin, carbamazepine, phenobarbitone

- Use a 5–7 day corticosteroid 'trial' and unless desired effect achieved, corticosteroid should be stopped

Abrupt withdrawal of corticosteroids[4]

Corticosteroids may be withdrawn abruptly provided that the patient has:

- received less than 3 weeks treatment and
- not received recent repeated courses of corticosteroids

and

- received doses less than 4-6mg dexamethasone (or equivalent) total daily dose and
- adverse effects are not anticipated by an abrupt withdrawal.

Gradual withdrawal of corticosteroids[4]

- Initially reduce rapidly (e.g. halving the dose daily) to physiological doses (dexamethasone 1mg/24h or prednisolone 7.5mg/24h)

- Subsequently more gradual reduction is advised (e.g. by 1–2mg prednisolone per week)

- Patients should be monitored for any deteriorations

If beneficial, corticosteroids should only be continued at a set dose for a maximum of 2–4 weeks, with planned review date to consider withdrawal.
Aim to prescribe the lowest dose that controls the symptoms.

- Watch for symptoms which might indicate hyperglycaemia e.g. increased thirst, increased frequency of micturition; check urinalysis/BM within 7 days of commencing steroids and on a regular basis while the patient remains on steroids

- Consider prescribing gastric protectants (i.e. proton pump inhibitor or H2 antagonist) in those patients with significant risk factors for peptic ulcer disease (e.g. on a concurrent NSAID[5], previous history of peptic ulcer disease)

Approximate relative potencies of corticosteroids[6]

Corticosteroid	Approximate equivalent anti-inflammatory dose of corticosteroids *(N.B. this chart dose not reflect the mineralo-corticoid actions of these drugs)*
Dexamethasone	750 micrograms
Prednisolone	5 mg
Hydrocortisone	20 mg

- If oral route is no longer available, dexamethasone may be given by infusion but may need to be given in a separate syringe driver (see syringe driver compatibility chart Appendix I. p120) or as a stat subcutaneous dose depending on volume

- The oral bioavailability of dexamethasone tablets is 80%, compared with intravenous doses[7]. There is no published literature comparing oral and subcutaneous administration. Generally oral and subcutaneous doses are considered equivalent. Other sources state dexamethasone to be twice as potent by the subcutaneous route, compared to oral[8]

- Where patients have recently discontinued corticosteroids consider additional doses for any circumstances involving physiological stress (pain, infection, trauma)

- It may be appropriate to stop corticosteroids in the last days of life unless they have been essential in achieving good symptom control for the patient e.g. to manage headaches, seizures or pain

What should the patient be told?

- Give patient a steroid card if they do not already carry one

- Explain the reason(s) for prescribing steroid, including anticipated benefits and side effects

- Take early in the day

- Don't stop suddenly, especially if steroids have been taken for more than 3 weeks – give a plan for dose reduction

- Improvement does not mean tumour regression

- To seek medical help if more unwell while taking corticosteroids, or come into contact with infectious disease (as recommended on steroid card)

- Vigilance for oral thrush

Corticosteroids

Dexamethasone	**Oral:** tablets 0.5mg, 2mg **Oral suspension:** dexamethasone 2mg in 5ml **Injection:** dexamethasone or dexamethasone phosphate (as dexamethasone sodium phosphate) 4mg/ml, 1ml amp, 2ml vial
Hydrocortisone	**Oral:** tablets 10mg, 20mg **Oral suspension:** dexamethasone 2mg in 5ml **Injection:** dexamethasone or dexamethasone phosphate 100mg/ml, 1ml amp, 100mg/2ml, 2ml amp, 500mg/5ml, 5ml amp
Prednisolone	**Oral tablets:** 1mg, 5mg, 25mg; soluble 5mg, EC 2.5, 5mg **Suppositories:** prednisolone 5mg (Predsol) **Rectal foam:** prednisolone (as metasulphobenzoate) 20mg/metered **application:** 14 applications) **Retention enemas:** Predsol retention enema 20mg (as sodium phosphate) in 100ml **Prednisolone retention enema**, 20mg (as sodium metasulphobenzoate) in 100ml

References

1. NICE Guidelines (2004). Improving Supportive Palliative Care for Adults with Cancer.

2. Wooldridge JE et al (2001). Corticosteroids in advanced cancer. Oncology 15:225.

3. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011.

4. Committee on Safety of Medicines and Medicines Control Agency Expert Working Group. Withdrawal of systemic corticosteroids. Current Problems in Pharmacovigilance 1998: 24 (May) 5.

5. Piper JM et al (1991). Corticosteroid use and peptic ulcer disease: role of non-steroidal anti-inflammatory drugs. Ann Intern Med 114:735.

6. Joint Formulary Committee (British Medical Association and Royal Pharmaceutical Company). *British National Formulary (BNF 62)*. bnf.org 2011.

7. Duggan D E et al (1975). Bioavailability of oral dexamethasone. Clinincal Pharmacy and Therapeutics 18(2):205-209.

8. Back I. (2001). Palliative Medicine Handbook 3rd Ed. BPM Books.

9. Feuer DDJ, Broadley KE.Corticosteriods for the resolution of malignant bowel obstruction in advanced gynaecological and gastrointestinal cancer (Review). Cochrane Database of Systematic Reviews 2000, Issue 1. Art. No.: CD001219. DOI: 10.1002/14651858.CD001219.

Chapter 5
Palliation of breathlessness

Breathlessness is a common symptom in both malignant and nonmalignant disease[1]. Up to 70% patients with cancer experience breathlessness in the 6 weeks prior to death[2], and this may be greater in lung cancer patients because of co-existent chronic obstructive pulmonary disease (COPD)[3]. Up to 40% of heart failure patients are breathless in the 6 months before death, rising to 65% in the three days leading up to death[4]. Breathlessness is almost universal in patients with more than mild COPD. With very advanced disease specific pharmacological treatment aimed at particular lung pathology (e.g. bronchodilators for bronchospasm) may have limited success and more general symptom control measures are often necessary[5].

The use of low dose opioids, titrated carefully, can help to relieve the sensation of breathlessness in patients with lung pathology, heart failure and cancer.

Oxygen therapy should not be used routinely – it may give symptom benefit if the patient is known to be hypoxic. The use of a fan or other draught of air may be just as effective as oxygen.

Non drug intervention may be of benefit in helping patients manage their symptoms; however in advanced illness patients may often require opioid and/ or benzodiazepine medication. These can be given by different routes of administration e.g. orally, sublingually (lorazepam), by continuous subcutaneous infusion via syringe driver or bolus PRN dosing (subcutaneously or in exceptional circumstances intravenously).

ASSESSMENT OF THE BREATHLESS PATIENT

- Determine the correct diagnosis
- Consider any other contributing factors e.g. dysrhythmia, anaemia
- Is there anything that can be corrected or treated? Seek advice if unsure
- Consider the use of oximetry, if available, to guide if oxygen therapy is likely to be of benefit (i.e. if oxygen saturation less than 90%)
- Consider psychological factors especially anxiety and the fear of choking/ suffocation
- Decide on the optimal management
- Only consider investigations which are likely to lead to a change in clinical management

MANAGEMENT OF BREATHLESSNESS

General (non-drug) measures

- Explanation of cause/reassurance
- Calm manner; fan or open window in acute attack
- Posture - ideally upright and leaning forward if possible

- Diaphragmatic breathing through pursed lips; visualization techniques to encourage longer expiratory phase
- Nutritional advice (e.g. small frequent meals, easily chewed)
- Relaxation training and/or complementary therapy
- Energy conservation/pacing training/equipment
- Treat depression and anxiety if present
- Benefits advice
- Encourage social interaction (e.g. peer group support, Breathe Easy Club, breathlessness management in a hospice day unit)

Specific measures

Conditions such as pneumonia, COPD, asthma, effusions etc should be dealt with using standard management. Seek further advice if needed.

For patients with SVC obstruction see Chapter 6 Palliative Care Emergencies. see page 63

For patients with stridor consider urgent referral to oncology or respiratory colleagues – high dose dexamethasone, 16 mg per day may be of benefit. For some patients however this may be part of a terminal process – see Management of breathlessness in the dying phase, see page 115.

Nebulised saline may be of some benefit to patients to aid in the expectoration of secretions.

Psychological measures

Psychological factors (e.g. anxiety, fear of death from choking or suffocation) often exacerbate any breathlessness resulting from physical disease.

Occasionally breathlessness may be largely due to psychological factors.

In such circumstances, good palliation depends on exploring the patient's beliefs about their breathlessness and their concerns. Reliance on drug treatment alone will only result in partial control of breathlessness.

Palliative therapies

Oxygen[6]

- Should be *prescribed*
- Target oxygen saturation may be useful to document
- Limited value if oxygen saturation is already >90% prior to starting oxygen therapy
- 1-2 litres per minute would be usual flow rate unless blood gases dictate otherwise
- In palliative care routine monitoring with blood gases is not usually required but use oxygen with caution in patients who are known to retain CO_2
- Risk factors for CO_2 retention:-
  - Previous episode of CO_2 retention
  - Known COPD/other lung pathology
  - Long history of smoking

Please monitor for signs of CO_2 retention
e.g. drowsiness, tremor, new confusion

Non-opioid drugs
- Bronchodilators – via inhaler / spacer or nebulizer
  Stop if no benefit

- Steroids – especially if previous therapy has been beneficial
  e.g. for asthma / COPD.
  Typical doses are 30–40 mg prednisolone per day or
  4 mg dexamethasone per day
  May be worth considering as a therapeutic trial in patients with lymphangitis (typically dexamethasone 16 mg per day)

Benzodiazepines
- May be useful for those patients with marked anxiety associated with episodes of breathlessness

- Less evidence for efficacy vs opioids in relieving breathlessness
  e.g. Lorazepam (scored blue tablet) 0.5mg sublingual 4–6 hourly PRN or Diazepam 2–5 mg o.n. regularly for patients with ongoing debilitating anxiety

Opioid drugs
- Can relieve the sensation of breathlessness. This is of most benefit for breathlessness at rest rather than on exertion.

- More evidence of efficacy vs benzodiazepines in relieving breathlessness

- Give as a therapeutic trial – monitor benefits and side effects. Titrate up slowly if required by 30% increments

- Opioid-naïve patients:-
  - Explain to the patient that morphine may be useful to relieve the sensation of breathlessness
  - Prescribe immediate release oral morphine (e.g Oramorph®) 2.5–5mg every 4–6 hours and/or PRN 2 hourly

- Patients on opioids for pain currently:-
  - Explain to the patient that morphine may also be useful to relieve the sensation of breathlessness
  - Some patients may find a lower opioid dose than their current breakthrough analgesic dose helpful for breathlessness, e.g. 25% of the current PRN breakthrough analgesic dose

- Long acting opioids may be considered for some patients with continuous breathlessness (seek specialist palliative care advice)

- Alternative opioids may be considered in some patients who cannot tolerate morphine (seek specialist palliative care advice)

- Lower doses of morphine (e.g Oramorph®) 1.25–2.5mg every 4–6 hours and/or PRN 2 hourly may be more appropriate in the following patients:-

  - elderly
  - frail
  - severe lung disease
  - heart failure
  - renal impairment

Please see also page 115 for the Management of breathlessness in the dying phase.

References

1. Booth S and Dudgeon D. Editors. Dyspnoea in advanced disease. A guide to clinical management. Oxford University Press, New York. 2006.

2. Reuben DB and Mors V. Dyspnoea in terminally ill patients. Chest, 1986, 89:234-6.

3. Dudgeon DJ et al. Dyspnea in cancer patients: prevalence and associated factors. Journal of Pain and Symptom Management, 2001, 21 :95-102.

4. Levenson JW et al. The last six months of life for patients with congestive heart failure. Journal of the American Geriatric Society, 2000, 45:S101.

5. Scottish Palliative Care guidelines NHS Lothian August 2010: http://www.palliativecareguidelines.scot.nhs.uk; accessed October 2011.

6. Joint Formulary Committee (British Medical Association and Royal Pharmaceutical Company). *British National Formulary (BNF 62*). bnf.org 2011.

7. Jennings A. Opioids for the palliation of breathlessness in terminal illness. Cochrane Database of Systematic Reviews 2001, Issue 3 http://www.cochrane.org/reviews/en/ab002066.html.

8. NICE. Chronic obstructive pulmonary disease. Management of chronic obstructive pulmonary disease in adults in primary and secondary care. Chapter 1.2 Managing stable COPD. June 2010. http://publications.nice.org.uk/chronic-obstruture-pulmonary-disease-cg101. accessed 20.01.20125.

Chapter 6
Palliative Care Emergencies

Superior vena cava obstruction (SVCO)

If SVCO is suspected discuss with an oncologist within 24 hours. The investigation of choice is a CTPA (CT Pulmonary Angiogram). It is usually due to malignant involvement of upper mediastinal lymph nodes or a right upper lobe lung cancer, intraluminal thrombus may also be a feature[1].

Symptoms and signs: headache; breathlessness; swelling of face and arms; fixed raised JVP; dilated veins on chest wall and around costal margin.

Initial treatment consists of dexamethasone 16 mg daily orally aiming to reduce any oedema around the tumour. Definitive treatment may include insertion of a vascular stent, radiotherapy or chemotherapy.

Hypercalcaemia of malignancy

Normal range: adjusted calcium 2.1–2.6 mmol/L

The majority of calcium circulates bound to albumin, but a small amount is present as the physiologically active "ionised" calcium. The adjusted calcium or "ionised" calcium should be used when the patient has a low albumin[2,3,4].

Corrected calcium (mmol/L) = measured calcium + (0.02 x [40-albumin g/l]).

Occurs in about 10–20% of patients affected by cancer. It is generally indicative of a poorer prognosis in solid tumours.

Symptoms and signs:
Confusion, drowsiness, nausea and vomiting, thirst, polyuria, constipation, lethargy, bradycardia and coma.

Severity of symptoms are not necessarily indicative of the level of hypercalcaemia.

Generally when managing hypercalcaemia, an adjusted calcium level greater than 3.0 should be treated whether the patient is symptomatic or not.

Treatment:
It is important to carefully balance the benefits versus burdens of treating hypercalcaemia in a patient with advanced disease, considering the care setting, previous history of hypercalcaemia and patient preferences[5].

Treatment includes parenteral rehydration and use of intravenous bisphosphonates.

Bisphosphonates start to take effect after 48 hours to lower serum calcium, however the maximum effect may not be seen for 5 to 7 days. Bisphosphonates therefore may not be indicated in a patient whose estimated prognosis is very short.

Discontinue any calcium, vitamin D or vitamin A supplements.

Review and consider discontinuing any drugs which may affect renal blood flow e.g. NSAIDs, diuretics, ACE inhibitors, Angiotensin II receptor antagonists.

Renal function and albumin should be checked prior to giving infusion. In renal failure consult product literature for dosing guidance.

Recent studies have shown zoledronic acid to be superior to pamidronate in terms of more rapid onset and longer duration of action but please refer to your local policy for guidance[4].

- Ensure the patient is appropriately hydrated before giving a bisphosphonate (e.g 1–3 litres of parenteral sodium chloride 0.9%) volume and rate should be adjusted according to age and other co-morbidities

- Depending on local policy pamidronate or zoledronic acid is used:-

Either:-

- Disodium pamidronate IV infused at a rate not exceeding 1 mg/min (see manufacturer's guidance for patients with renal impairment):-

Corrected calcium (mmol/L)	Pamidronate (mg)	0.9% saline (mL)
< 3	30	250
3 – 3.5	60	250
> 3.5	90	500

- However one systematic review of bisphosphonate use[4] states that 90mg pamidronate may be given irrespective of the initial calcium level, in order to increase the likelihood of successful and sustained normocalcaemia.

Or:-

- Zoledronic acid IV 4mg in 100 mL 0.9% saline infused over 15 minutes at least

- Repeated infusions of bisphosphonates carry an increased risk of developing osteonecrosis of the jaw (rare before 4 months of treatment). Patients should avoid invasive dental procedures while receiving ongoing bisphosphonate therapy

Monitoring

- Repeat calcium levels are best monitored at 5–7 days post infusion as it takes this length of time for the bisphosphonate to have reached its maximum effect. It is advisable to recheck the calcium level when patient experiences symptoms or every 3-4 weeks

Management of resistant / recurrent hypercalcaemia

- For resistant hypercalcaemia (hypercalcaemia not responding to initial bisphosphonate therapy at appropriate dose) seek specialist palliative care advice

- Recurrent hypercalcaemia, that has recurred within a short time (e.g. 1 to 2 weeks) after previous appropriate treatment may represent advancing disease and may be less likely to respond to further treatment. If required, a further dose can be administered at 5–7 days. Seek specialist palliative care advice

Metastatic Spinal Cord Compression (MSCC)[6]

This occurs in 5–10% of cancer patients, the most common underlying tumours being lung, breast and prostate (40% of all cases).

Early detection has a significant outcome on morbidity and mortality.

Symptoms and signs:

NICE recommends that in the following instances the MSCC coordinator (e.g. Acute Oncology Nurse Specialist, on call Consultant Oncologist/Spinal Surgeon/Neurosurgeon[7])
(i) is contacted within 24 hours to discuss the care of patients with cancer and any of the following symptoms suggestive of spinal metastases:

- pain in the middle (thoracic) or upper (cervical) spine
- progressive lower (lumbar) spinal pain
- severe unremitting lower spinal pain
- spinal pain aggravated by straining (for example, at stool, or when coughing or sneezing)
- localised spinal tenderness
- nocturnal spinal pain preventing sleep

(ii) is contacted immediately to discuss the care of patients with cancer and symptoms suggestive of spinal metastases who have any of the following neurological symptoms or signs suggestive of MSCC, and view them as an oncological emergency:

- neurological symptoms including radicular pain, any limb weakness, difficulty in walking, sensory loss or bladder or bowel dysfunction

- neurological signs of spinal cord or cauda equina compression

Immediate treatment:
Oral dexamethasone 16 mg daily.

If a patient with suspected MSCC is considered fit for investigation and treatment an **urgent** MRI of the whole spine is the investigation of choice.

Corticosteroid use and withdrawal in MSCC

- Unless contraindicated (including a significant suspicion of lymphoma) offer all patients with MSCC a loading dose of at least 16 mg of dexamethasone as soon as possible after assessment, followed by a short course of 16 mg dexamethasone daily while treatment is being planned

- Continue dexamethasone 16 mg daily in patients awaiting surgery or radiotherapy for MSCC. After surgery or the start of radiotherapy the dose should be reduced gradually over 5–7 days and stopped. If neurological function deteriorates at any time the dose should be increased temporarily

- Reduce gradually and stop dexamethasone 16 mg daily in patients with MSCC who do not proceed to surgery or radiotherapy after planning. If neurological function deteriorates at any time the dose should be reconsidered.

- Monitor blood glucose levels in all patients receiving corticosteroids

See also Chapter 4 Corticosteroids. p49

Major haemorrhage[7,8]

Clinically significant bleeding occurs in 6-10% of patients with advanced cancer, often this may be internal.

The most common primary cancer sites include:-

- Lung
- Head and neck
- Upper GI

The risk of bleeding can be affected by other factors such as:-

- Coagulopathy (includes patients on aspirin and NSAIDs, anti-coagulant therapy or intrinsic coagulation problems, such as bone marrow failure)
- Proximity of the tumour to major blood vessels
- Presence of fungating or infected wounds

Sensitive exploration of the patient and carer's understanding of the clinical situation and potential risk for significant bleeding may reduce distress by providing a clear plan of action in the event.

The carer and health care professional can best support the patient by remaining calm and where possible close to the patient. Dark coloured towels may be helpful in disguising the appearance of the blood.

Anticipatory prescribing with an anxiolytic/sedative such as midazolam (buccal or IM) is the recommended management in the event of an acute terminal bleed[9]. Seek specialist palliative care advice If required.

References

1. Chan KS et al. Palliative medicine in malignant respiratory diseases. Pp 598. In: Doyle D, Hanks G, Cherny N and Calman K. (editors) Oxford Textbook of Palliative Medicine. 3rd edition. Oxford University Press, New York. 2005.

2. Bower M and Cox S. Endocrine and metabolic complications of advanced cancer. Pp 687-690. In: Doyle D, Hanks G, Cherny N and Calman K. (editors) Oxford Textbook of Palliative Medicine. 3rd edition. Oxford University Press, New York. 2005.

3. Major P et al. Zoledronic acid is superior to pamidronate in the treatment of hypercalcaemia of malignancy: a pooled analysis of two controlled clinical trials. Journal of Clinical Oncology, 2001, 19:558-567.

4. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011.

5. Lamy O, Bruckhardt P. Hypercalcaemia of malignancy , diagnosis and treatment.Am J Cancer 2002;1(4):277-292.

6. National Institute for Health and Clinical Excellence. Metastaticspinal cord compression:diagnosis and management of patients at risk of or with spinal cord compression.(Clinical guidelines 75) London:NICE,2008. Available from : www.nice.org.uk/CG75 Last accessed 8 November 2011].

7. Prommer E . Management of bleeding in the terminally ill patient. Haematology 2005;10(3):167-175

8. Perira J, Phan T. Management of bleeding in patients with advanced cancer. Oncologist 2004;9:561-570.

Chapter 7
The syringe driver

The following guidelines acknowledge that subtle changes in clinical practice may occur between hospital, hospice and community practice and endeavour to promote safe and consistent methods of practice, based on collaborative experience around the West Midlands Region.

At the time of writing it is recognised that many palliative care teams will be phasing out the use of Graseby syringe drivers in accordance with NPSA Alert Dec 2010[1]. However we acknowledge that Graseby syringe drivers are still currently in use in some areas of the West Midlands while the changeover to the new syringe drivers takes place. Therefore for this reason information about both Graseby and McKinley syringe drivers is included in this chapter.

The syringe driver is a small portable battery-driven infusion pump, used to deliver medication subcutaneously as a continuous infusion usually over 24 hours. It can be used when other routes (e.g. oral, buccal, rectal, transdermal) are unsuitable.

INDICATIONS FOR STARTING A SYRINGE DRIVER

The syringe driver may be indicated in the following situations:

- persistent nausea or vomiting
- difficulty swallowing
- poor alimentary absorption
- intestinal obstruction
- profound weakness / cachexia
- comatose or moribund patient
- administration of drugs that cannot be given by non-parenteral routes

Three of the commonest syringe drivers are:-

Graseby® MS 16 (Blue) delivers at a rate of **mm/hour**
Graseby® MS 26 (Green) delivers at a rate of **mm/day**
McKinley® T34 set up according to **volume of fluid**

CARE OF THE SYRINGE DRIVER

If doses of drugs need to be changed then change the syringe. Change the syringe and the infusion line. It is best not to alter the rate.

Check the syringe driver and infusion regularly for:

- irritation at the injection site, change site or ask advice
- crystallisation of drug (*seek specialist advice*)
- light flashing (if not check the battery)
- secure connections or kinked tubing
- leakage
- correct volume remaining

CHOICE OF INFUSION SITES

Sites of choice include:

- anterior chest wall
- lateral upper arms
- anterior abdominal wall
- anterior outer thigh
- area over scapula (in confused or disorientated patient)

Avoid areas of inflammation, oedema, broken skin, bony prominences, recently irradiated areas, sites of tumour, sites of infection, skin folds or lymphoedema.

SELECTION OF DRUGS

The choice of drug is dictated by the symptom, and the compatibility with other drugs to be delivered. *See Compatibility Chart - Appendix I. p120*

PRESCRIBING FOR THE SYRINGE DRIVER

The dose of each drug to be given by infusion over a specified time period (usually 24 hours) should be clearly written.

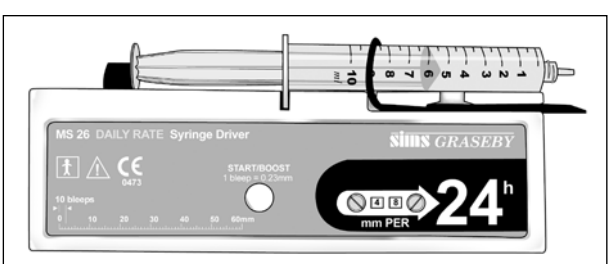
Notes

- Opioids via the syringe driver will not give better analgesia than orally unless there is a problem with absorption or administration of the drug
- Long term use is rarely indicated but if required a syringe driver may be maintained as long as is necessary

GRASEBY® SYRINGE DRIVERS

e.g.

Graseby® MS 26 (Green) syringe driver



- Since the syringe bore varies with different manufacturers and syringe volumes, it is the length of the infusion fluid that is important, not the volume in the syringe

- Staff should only use this equipment if trained to do so

SETTING UP A GRASEBY® SYRINGE DRIVER

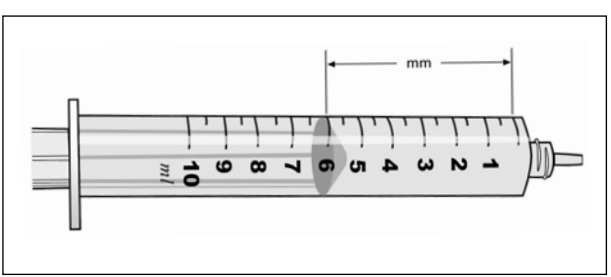
You will need:

- Syringe driver
- 9v Battery
- Luer-lok syringe (usually 10ml but 20ml or 30ml may be used)
- Infusion or (giving) set (chose the smallest volume)
- Fine gauge needle (23G or 25G butterfly)
- Clear adhesive film dressing
- Diluent (usually water for injection)
- Medication as prescribed
- Label to be attached to the syringe
- Holster for ambulatory patients

PREPARING THE GRASEBY® INFUSION

- Note the volume (ml) that measures 48mm in length. This will vary with different makes and sizes of syringe
- Dissolve powdered drugs to be used with sterile water for injection
- Draw up drugs into the syringe and dilute to the volume required with sterile water for injection
- Invert the syringe several times to ensure good mixing
- The infusion line will need to be primed if you are initiating treatment or re-siting the infusion. Connect the infusion (giving set) to the luer lock and prime the infusion line with the contents of the syringe
- Label the syringe clearly with the patient's name and infusion contents and dose

Diagram of syringe barrel with volume measurement



PREPARING THE GRASEBY® SYRINGE DRIVER

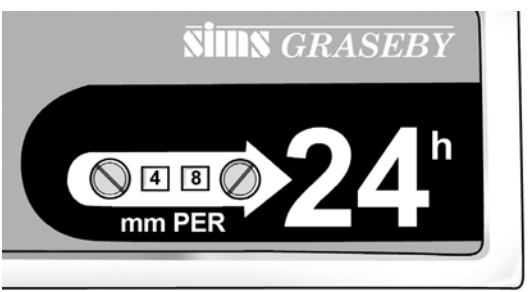
- Set the rate of delivery

  The rate of delivery is calculated as:

  $$\frac{\text{length of volume (eg 48mm)}}{\text{delivery time (eg 1 day)}}$$

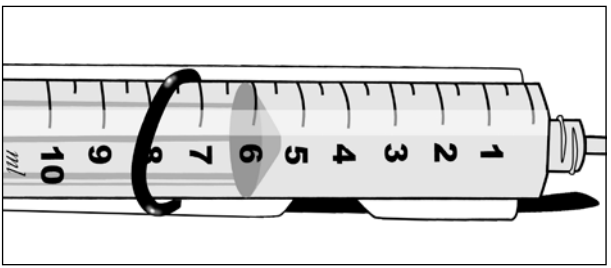
  eg with 48mm of infusion: the MS16 is set at 02 mm/hr
  the MS26 is set at 48mm/24hrs

Diagram MS 26 rate setting from Graseby®



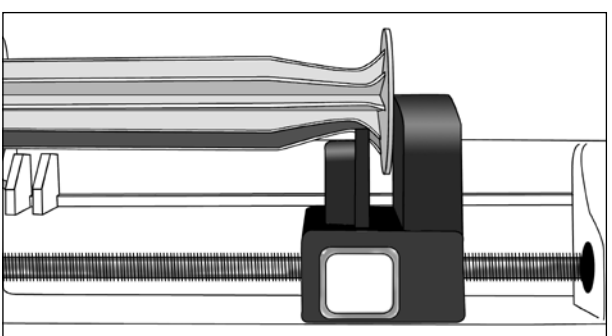
- Insert battery: alarm will sound for a few seconds
- Attach the loaded syringe to syringe driver
- The syringe sits on top of the driver in a V-shaped recess: fit the flange of the barrel into the slot provided
- Secure in position with neoprene strap

Diagram of neoprene strap



- Press white release button to slide activator assembly up to the plunger and clamp in place

Diagram of slide activator with plunger in slot



COMMENCING THE GRASEBY® INFUSION

- Insert fine gauge butterfly with long tubing into the skin of the anterior chest wall (or other convenient subcutaneous site) at an angle of 45 degrees to the skin
- Start the syringe driver by pressing the start/boost button
- Light will flash every 2025 seconds on MS26
- Protect the mixture from light by using a holster or covering
- A separate subcutaneous dose of analgesic, anti-emetic, antisecretory or anxiolytic may be required when setting up the syringe driver. Do not use the boost button for this
- Any unused solution should be discarded
- As required subcutaneous doses of drugs should be prescribed separately in anticipation of breakthrough symptoms.

DO NOT:-

- Change the rate setting on the syringe driver
- Add medication to an existing syringe
- Use the boost button

MCKINLEY® SYRINGE DRIVERS

McKinley® T34 infusion pump (syringe driver)

- The McKinley® T34 syringe driver is used to deliver drugs at a predetermined rate via the subcutaneous route over a 24 hour period
- A maximum of 3 compatible drugs can be mixed in a syringe for administration via this route
- Staff should only use this equipment if trained to do so
- With a McKinley® syringe driver it is the volume of the infusion fluid that is important as only Becton Dickinson® (BD Plastipak®) syringes are recommended
- The syringe driver calculates and displays the deliverable volume, duration of infusion and rate of infusion (ml/hr)

SETTING UP A MCKINLEY® SYRINGE DRIVER

You will need:

- McKinley® T34 syringe driver
- 9v alkaline/lithium battery - PP3 recommended
- 20ml or 30ml BD Plastipak® Luer-lok syringe
- *If a large volume of medication is required then a 50ml syringe is also an option (this will not fit in the lockable case device); it may not be possible for syringes to be filled to capacity i.e. 34-44ml can be delivered from a 50ml syringe and 24ml can be delivered from a 30ml syringe*
- Infusion (or giving) set
- 22 G cannula
- Clear adhesive film dressing
- Diluent (usually water for injection)
- Medication as prescribed
- Label to be attached to syringe
- Holster for ambulatory patients

PREPARING THE MCKINLEY® SYRINGE DRIVER INFUSION

With McKinley® T34 the final volume in the syringe will determine the rate of infusion (ml/hr)

- Dissolve powdered drugs with sterile water for injection if necessary (sterile water for injections may not be needed if other drugs can act as the diluent)
- Draw up drugs into syringe and dilute to volume required with sterile water for injection

- Rock the syringe to ensure mixing of the contents.
    - Label the syringe clearly with the:-
        - patient's name
        - infusion contents and doses
        - date and time
        - initials of persons preparing and checking
- Prime the infusion line and cannula
- Insert the cannula subcutaneously into the patient in an appropriately identified area for administration
- Secure with clear film adhesive

PREPARING THE MCKINLEY® SYRINGE DRIVER

- Install the battery in the syringe driver (a battery of 100% has a 3-4 day life only)
- Ensure barrel clamp arm is down
- Press and hold the ON/OFF key until "pump identification" screen appears
- Screen will indicate "Pre-Loading" and then syringe sensor detection screen will appear
- Press INFO key several times to check battery power (and discard if e.g. <40% according to local policy), then press YES to confirm

Pre-Loading
Use NO to Interrupt

FITTING SYRINGE INTO MCKINLEY® SYRINGE DRIVER

- Check patient's name is correct with the patient's ID label (e.g. wrist banda label)
- Check drugs are correct with the prescription chart
- Lift and turn barrel arm
- Seat the filled syringe collar and plunger so the back of the collar sits in the central rest, the collar should be vertical and the scale on the barrel should face forward and be easily read
- Lower the barrel clamp arm (syringe graphic will stop flashing when syringe correctly seated)
- Syringe brand and size will be displayed

20ml BD Plastipak
Select ⇅, Press YES

- Confirm the syringe size and brand match screen message. Press YES to confirm

COMMENCING THE MCKINLEY® SYRINGE DRIVER INFUSION

- After confirming the syringe the display will show the deliverable volume, duration and rate of the infusion e.g.

Volume	**20.3ml**
Duration	**24.00**
Rate	**0.85ml/hr**
Confirm, Press YES	

- Check the line is connected to the syringe driver and press YES

- Press YES to confirm or ON/OFF to return to syringe options
- Pump screen will prompt - Start Infusion?
- Check the line is connected to the syringe driver and press YES
- When the syringe driver is running the screen will display e.g.

Time Remaining	**23:59**
Rate	**0.66ml/h**
<<< Pump Delivering	

- Green LED light will flash every 32 seconds
- A breakthrough dose of analgesia may be needed as it will take 4 to 6 hours for therapeutic blood plasma levels to be reached using the syringe driver for the first time or for dose increments
- To lock the keypad: press and hold down the INFO key (screen shows a progress bar moving from left to right) until the bar has moved completely to the right and a beep is heard to confirm lock has been activated. *(When keypad is locked the buttons NO/STOP; YES/START; INFO are still active)*
- To unlock the keypad: repeat this procedure, the bar will run from right to left and a beep is heard to confirm the keypad is unlocked
- A lockbox is available for the McKinley® syringe driver – see photo below *(this lockbox will not take a syringe larger than 30ml although the McKinley® syringe driver will take a 50ml syringe)*

MIXING DRUGS IN THE SYRINGE DRIVER

Definitive data on compatibility, stability and efficacy are still lacking. Generally all of the drugs included in the table (see Appendix I) are compatible with morphine and diamorphine, however cyclizine compatibility is concentration dependent. Cyclizine does not mix with oxycodone at therapeutic doses.

Dexamethasone compatibility is unpredictable and is best given in a separate syringe driver if possible or as a bolus subcutaneous dose once daily. A compatibility chart based on studies performed at specified drug concentrations is shown in Appendix I. p120

The following precautions will minimise the risk of problems of incompatibility and instability:

- A maximum of 3 compatible drugs in any one syringe driver is recommended
- Do not leave drugs in a syringe driver for more than 24 hours
- Seek advice from the Specialist Palliative Care Team if necessary

Notes

Although subcutaneous administration of these drugs is common and accepted good practice in palliative care, the use of this route lies outside the product license for most of these preparations.

Acknowledgements
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References

1. NPSA Alert December 2010; NPSA/2010/RRR019.

2. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011: chap 20, pp665-680.

3. Dickman A. *Drugs in Palliative Care.* Oxford University Press 2010: chap 2.

4. University Hospitals of Coventry and Warwickshire NHS Trust McKinley T34 Syringe Pump Guidelines 2011 (Draft).

The use of common medicines in syringe drivers

Medication	Indication	Subcutaneous starting dose over 24 hrs	Ampoules available
Analgesic Diamorphine	**Pain**	1/3 total daily dose of oral morphine	5,10,30,100,500mg
Morphine		1/2 total daily dose of oral morphine	10mg/ml, 15mg/ml, 20mg/ml, 30m/ml as 1ml and 2ml ampoules
Oxycodone		1/4 total daily dose of oral morphine or 1/2 total daily dose of oral oxycodone *Increase opioids as necessary by 30-50% increments*	10mg/ml as 1ml and 2ml ampoules. 50mg/ml as 1ml ampoules
Antiemetic Metoclopramide	**Impaired gastric emptying**	30–40mg (range 30–100mg)	10mg/2ml
Haloperidol	**Drug induced or metabolic cause of nausea**	2.5mg (range 2.5–5mg)	5mg/1ml and 20mg/2ml
Cyclizine	**Intestinal obstruction**	150mg	50mg/1 ml

Medication	Indication	Subcutaneous starting dose over 24 hrs	Ampoules available
Antiemetic and sedative Levomepromazine	**Nausea**	6.25mg–25mg*	25mg/1 ml
	Sedation, confusion, agitation	12.5mg–75mg*	
Sedative Midazolam	**Terminal restlessness**	5mg–30mg*	5mg/5ml
	• Preventative (no recent seizures)	10mg–30mg*	10mg/2ml
	• Ongoing seizure activity	30mg–60mg*	10mg/5ml
Clonazepam	**Terminal restlessness**	1mg–2mg*	
	• Preventative (no recent seizures)	1mg–2mg*	
	• Ongoing seizure activity	2mg–8mg*	1 mg/1 ml

Medication	Indication	Subcutaneous starting dose over 24 hrs	Ampoules available
Anticholinergic			
Hyoscine hydrobromide (also anti-emetic)	**Terminal respiratory secretions**	0.6mg–1.2mg (SC as required dose is 400 micrograms)	0.4mg/1 ml and 0.6mg/1ml
Glycopyrronium	**Terminal respiratory secretions with colic / intestinal obstruction**	0.6mg–1.2mg (SC as required dose is 200 micrograms)	0.2mg/1ml and 0.6mg in 3ml
Hyoscine butylbromide	**Terminal respiratory secretions with colic / intestinal obstruction**	60mg–120mg (SC as required dose is 20mg)	20mg/1ml

Medication	Indication	Subcutaneous starting dose over 24 hrs	Ampoules available
Steroid Dexamethasone	See Chapter 4 Corticosteroids	2–16mg	Dexamethasone as dexamethasone sodium phosphate 4mg/ml, 2ml vial
Anti-secretory Octreotide	**Intestinal obstruction** to reduce secretions if hyoscine butylbromide ineffective (with Specialist Palliative Cares advice)	500 micrograms/24hr initially. Can be increased to 800 micrograms/24hrs if necessary. If ineffective stop after 48 hours. If octreotide effective titrate to lowest effective dose See Chapter 2 page 39	50mcg/1ml 100mcg/1ml 500mcg/1ml 1000mcg/5ml

Contraindicated: DIAZEPAM, PROCHLORPERAZINE AND CHLORPROMAZINE are too irritant to be used subcutaneously.
Diamorphine or morphine should be the opioid of first choice for injection. To convert from oral morphine to subcutaneous diamorphine, divide the total 24 hr oral morphine dose by 3 to obtain the total 24hr diamorphine dose. When converting from oral morphine to subcutaneous morphine divide the 24 hr oral morphine dose by 2
e.g 3mg oral morphine = 1mg diamorphine subcutaneous injection
3mg oral morphine = 1.5mg morphine subcutaneous injection

* *Start at lowest dose in the range especially in frail elderly patients; review dose every 24 hours and increase if necessary by 30% – 50% according to additional as required doses. Higher doses than this are occasionally necessary – seek Specialist Palliative Care Team advice.*

Chapter 8

Symptom control in patients with renal disease and cardiac failure

Symptom control measures may need to be modified in cancer patients who have concurrent illness or who have organ failure as part of their malignant disease.

Patients who have non-malignant, end–stage organ failure often have palliative care and symptom control needs.

The principles of pain and symptom control previously described for cancer patients can be modified for use in patients with non-cancer disease who are being managed palliatively. The concept of total pain and identification of the cause and nature of pain remains important. The prescription of analgesia by the clock, by the WHO ladder and by mouth, where possible, is ideal. However the choice and dose of analgesia and other symptom control drugs may need to be modified depending upon the underlying disease(s).

The following guidelines aim to provide general symptomatic prescribing advice for patients who are being managed palliatively with a diagnosis of:

- renal disease or
- cardiac failure or
- renal disease and/or cardiac failure in addition to a malignant condition

Identification of the palliative phase in non-malignant conditions can be more difficult and unpredictable than in cancer patients.

Advice should be sought from the patient"s specialist team and the Specialist Palliative Care Team if necessary, alongside discussion with the patient and family.

Management of patients on dialysis should always be discussed with their Renal Team.

RENAL DISEASE

Cancer patients may develop renal impairment e.g.

- ureteric obstruction caused by compression by a pelvic tumour, or
- as a consequence of a concurrent illness

If clinically appropriate the origin of the renal impairment should be investigated and corrected if possible

e.g. stenting in ureteric obstruction

As previously described the cause of pain and other symptoms should be identified and treated appropriately.

In patients with End Stage Renal Disease (ESRD) specific causes of pain may be due to:

- Underlying disease e.g. polycystic kidney disease, diabetic neuropathy

- Renal disease and its treatment eg. calciphylaxis (tissue ischaemia due to calcification of tissue and small arteries in dialysis patients); ischaemic neuropathies due to A-V fistulae; peritonitis due to peritoneal dialysis

ANALGESIA IN PATIENTS WITH RENAL DISEASE

Many analgesics are excreted by the kidneys and any degree of renal impairment can reduce drug clearance, and therefore the dose of drug required. Glomerular filtration rate (GFR) gives an indication of how much drug clearance will be affected by renal impairment. Renal dysfunction can also influence the absorption, metabolism, distribution and pharmacodynamics of many drugs.

End Stage Renal Disease (ESRD) correlates to

- GFR of less than 15mls/min or
- Stage 5 (UK CKD Guidelines 2005)

Stages of CKD[1]

Stage	eGFR	Description
1	>90 mL/min	Normal renal function
2	60–89 mL/min	Mildly reduced renal function
3	30–59 mL/min	Moderately reduced renal function
4	**15–29 mL/min**	**Severely reduced renal function**
5	**<15 mL/min**	**Very severe or ESRD**

eGFR estimated glomerular filtration rate

Patients with GFR 15-29mls/min (Stage 4) will also be more safely managed with medication dose reductions recommended for Stage 5 disease.

CREATININE CLEARANCE

Creatinine clearance is used as an approximation of GFR. Medicine dosing medications in patients with renal disease are made using the creatinine clearance. Creatinine clearance is calculated using the Cockcroft and Gault formula.

$$C_{Cr}\ \text{(men)} = \frac{1.23 \times (140 - \text{age}) \times \text{weight (Kg)}}{\text{Plasma Creatinine (micromoles/l)}}$$

$$C_{Cr}\ \text{(Women)} = \frac{1.04 \times (140 - \text{age}) \times \text{weight (Kg)}}{\text{Plasma Creatinine (micromoles/l)}}$$

In general when prescribing analgesics in ESRD:

- immediate release preparations are safer than sustained/ modified/ controlled release preparations
- p.r.n. (as required) prescriptions are safer than regular prescriptions
- extended dose intervals are better tolerated

Analgesics in renal disease

Drug	Metabolism	Dose adjustments	Comments
WHO Ladder Step 1 analgesics			
Paracetamol Generally safe	Extensively metabolised by liver	Generally safe at full dose Maximum 1g q.d.s.	Avoid effervescent tablets (high sodium content)
NSAIDS *Avoid (unless risk of deteriorating renal function outweighed by need for NSAID analgesia or patient is on dialysis).*	Inhibits COX in kidney Excreted mainly by liver		Can cause severe and irreversible reduction in GFR Avoid in renal failure

Analgesics in renal disease (cont.)

Drug	Metabolism	Dose adjustments	Comments
WHO Ladder Step 2 analgesics N.B. No opioid is completely safe in ESRD: All patients with renal impairment should be monitored for signs of opioid toxicity:- respiratory depression, myoclonic jerks, drowsiness, confusion, hallucinations, agitation.			
Codeine *Avoid*	Metabolites excreted by the kidneys and accumulate		
Tramadol *Generally tolerated at reduced doses*	Metabolised by the liver Excreted in urine	Dose reduction required in patients over 75 years and in renal failure GFR less than 30ml/min at dose of 50-100mg BD PO GFR less than 10ml/min at dose of 50mg BD PO (50mg QDS PO if on dialysis)	Use immediate release preparation. Generally has fewer opioid side effects than other opioids at an equivalent dose

Continues on next page

Analgesics in renal disease (cont.)

Drug	Metabolism	Dose adjustments	Comments
WHO Ladder Step 3 analgesics N.B. No opioid is completely safe in ESRD: Patients should be monitored for signs of opioid toxicity when commencing any strong opioid. e.g. respiratory depression, myoclonic jerks, drowsiness, confusion, hallucinations, agitation. See page 15 for dose conversions and seek specialist advice			
Alfentanil *Suitable parenteral opioid for use in advanced renal disease*	Extensively metabolised in the liver	No change in dose require See conversions in Pain Chapter 1	Can be given via s.c. syringe driver. Short duration of action limits its use for breakthrough analgesia
Buprenorphine *Use with caution*	Metabolised in liver but metabolites excreted in the urine	Limited data Use lowest dose possible	Available as transdermal patch and sublingually. Accumulation of metabolites in renal failure may cause respiratory depression

Analgesics in renal disease (cont.)

Drug	Metabolism	Dose adjustments	Comments
Fentanyl *Suitable parenteral opioid for use in advanced renal disease* *It is not advisable to use immediate release fentanyl preparations in patients who are naive to step 3 opioids. Seek specialist advice*	90 % metabolised in the liver	Does not appear to significantly accumulate in renal failure. Use according to guidelines for non-renal failure patients (see Pain Chapter 1)	Available as immediate release preparations and as a transdermal patch *(Can be given s.c. via a syringe driver but the more soluble Alfentanil may be preferable if large dose volumes of Fentanyl are required)*

Continues on next page

Analgesics in renal disease (cont.)

Drug	Metabolism	Dose adjustments	Comments
WHO Ladder Step 3 analgesics (*cont.*) N.B. No opioid is completely safe in ESRD: Patients should be monitored for signs of opioid toxicity when commencing any strong opioid. e.g. respiratory depression, myoclonic jerks, drowsiness, confusion, hallucinations, agitation.			
Hydromorphone *Use with caution*	Primarily metabolised in the liver but excreted in the urine	Use immediate release preparation 4–6 hourly initially and titrate cautiously Remember that the lowest oral dose is 1.3mg which is equivalent to 10mg morphine	Theoretically may cause similar problems to morphine but in practice often better tolerated than morphine. Available in immediate release and slow release oral preparations and s.c.
Oxycodone *Use with caution. Avoid in stage 5 CKD*	Eliminated mainly by the liver, 10% excreted unchanged in urine	If used, start with smallest dose possible in an immediate release preparation. Consider extending dose interval	Elimination half-life is prolonged, therefore may accumulate in advanced renal disease
Methadone *Use by experienced clinician only*	Metabolised in liver. Excreted mainly in faeces	Significant individual variation makes titration of doses difficult as in patients with normal renal function	May be a useful alternative to other opioids in advanced renal disease BUT requires specialist supervision
Morphine *Not well tolerated. Avoid if possible*	Major metabolite (morphine-3-glucuronide) excreted by kidneys and accumulates in renal failure	If necessary to use, start with an immediate release preparation in small doses. E.g. 1.25–2.5mg every 4 to 6 hours	Likely to cause toxicity and have a longer duration of action. Not well tolerated in patients with advanced renal disease
Diamorphine *Not well tolerated. Avoid if possible*	Metabolised to morphine	If necessary to use, start with small doses e.g. 1.25 –2.5mg every 4 to 6 hours	As for morphine

Analgesics in renal disease (cont.)

Drug	Metabolism	Dose adjustments	Comments
Adjuvant analgesics for Neuropathic Pain			
Tricyclic antidepressants	Metabolised by the liver	Dose reduction is not usually necessary in renal failure	Start with low doses e.g. amitriptyline 10 to 25mg, increasing slowly. Beware increased risk of cardiovascular side effects in patients with renal impairment
Anticonvulsants: Carbamazepine	Metabolised by the liver	No dose adjustment required. Commence at 200mg daily	May accumulate in renal failure
Gabapentin *Use with caution*	Excreted unchanged by the kidneys	Dose depends on GFR: if GFR<15ml/min max 300mg OD;if GFR 15-29ml/min max 300mg BD	May accumulate in renal failure
Pregabalin *Use with caution*	Excreted unchanged by the kidneys	Dose depends on GFR: if GFR<15ml/min max 75mg OD; if GFR 15–29ml/min max 150mg OD	May accumulate in renal failure
Sodium valproate.	Metabolised by the liver and eliminated by the kidneys	No dose adjustment required. Commence at 200mg daily	Usually well tolerated
Clonazepam	Metabolised by the liver eliminated by the kidneys	0.5mg to 1mg nocte PO/SC	May accumulate in renal failure

Anti-emetics in renal disease

Drug	Metabolism	Dose adjustments	Comments
Cyclizine *Avoid*	Metabolised by the liver	*Avoid*	Cyclizine may induce hypotension and tachyarrythmia and is not recommended
Haloperidol	Metabolised mainly by the liver	50% dose reduction is advised	1.5mg OD nocte PO/SC
5-HT_3 receptor antagonists	Ondansetron is metabolised mainly by the liver	No dose reduction is necessary	Ondansetron 8mg BD PO
Levomepromazine	Metabolised by the liver but excreted in the urine and faeces	Reduced doses may be required	6.25mg nocte PO/SC
Metoclopramide	Excreted by the kidneys	Avoid or use smallest dose possible in severe renal failure	Increased risk of extrapyramidal side effects in renal impairment

Drugs used in the dying phase

Drug	Indication	Metabolism	Dose adjustments	Comments
Glycopyrronium	Upper respiratory tract secretions	Excreted via the kidneys	Use at 50% dose	Does not cross blood-brain barrier
Hyoscine butylbromide	Upper respiratory tract secretions	Metabolised in the liver	No dose reductions necessary	Does not cross blood-brain barrier
Hyoscine hydrobromide *Avoid*			*Avoid*	Crosses blood-brain barrier and can cause agitation
Midazolam	Agitation	Predominantly metabolised by the liver	Start with small doses e.g. 1.25 –2.5mg SC p.r.n. and 5mg / 24hr via a syringe driver	Increased cerebral sensitivity can occur
Alfentanil	Pain	Extensively metabolised in the liver	No change in dose required *See conversions in Pain chapter*	Can be given via s.c. syringe driver. Short duration of action limits its use for breakthrough analgesia

CARDIAC FAILURE

- Classified as either:

- cardiac failure with Left Ventricular Systolic Dysfunction, (LVSD) *(as seen on echocardiography)*

  or

- diastolic heart failure
  (with echocardiographic evidence of an ejection fraction of greater than 40-50%)

- also known as heart failure with
- preserved ejection fraction or
- preserved systolic function or
- normal ejection fraction (‘*HFNEF*’)

- Diastolic heart failure may occur in patients with e.g. hypertension, hypertrophic cardiomyopathy or aortic stenosis.

Cardiac failure can be described by stage according to the New York Heart Association (NYHA) classification:-

NYHA Class	Symptoms
I	Cardiac disease not limiting physical activity; no symptoms with ordinary activity
II	Symptom-free at rest; slight limitation of physical activity; symptoms with ordinary activity but resolve with rest
III	Symptom-free at rest; ordinary activity markedly limited due to symptoms
IV	Symptomatic at rest. Unable to carry out ordinary activity

50% of patients with heart failure (all classes) die within 4 years and 50% of those with class IV heart failure die within 1 year.

Common symptoms include:

- lack of energy and reduced exercise tolerance
- anorexia and weight loss *(cardiac cachexia)*
- drowsiness
- dry mouth
- breathlessness
- nausea and vomiting *(use metoclopramide or domperidone; avoid cyclizine see below)*
- constipation
- anxiety and depression *(consider anxiolytic or antidepressant such as SSRI or mirtazepine; avoid tricyclic antidepressants and venlafaxine see below)*
- pain, for example due to:-
    - angina (consider transdermal nitrate if patient cannot take oral nitrate medication)
    - claudication
    - diabetic neuropathy
    - abdominal bloating (due to e.g. liver capsule distension, gut wall oedema, constipation)

Management of symptoms includes optimising cardiac medication as appropriate in discussion with the Heart Failure Team:-

Cardiac failure with LVSD:

- loop diuretic if fluid overload *(eg furosemide - may be given subcutaneously via syringe driver if necessary in end-stage cardiac failure[11])*

- angiotensin-converting enzyme inhibitor *(ACE inhibitor eg ramipril)*
  or
  angiotensin-receptor blocker *(ARB eg candesartan)* if intolerant to ACEI, e.g. cough
- spironolactone for NYHA class III and IV *(beware hyperkalaemia)*
- beta-blocker *(e.g. bisoprolol, carvedilol, nebivolol*)*
- digoxin (*for positive inotropic effects and/or rate control in atrial fibrillation*)

**best tolerated and licensed in the elderly*

Diastolic heart failure:
- loop diuretic if fluid overload (eg furosemide)
- rate control (to prolong LV diastole)
- converting to sinus rhythm if in AF *(discuss with the Heart Failure Team)*

Symptoms may be reversible for example:

Symptom/s	Reversible cause/s
Nausea Diarrhoea Drowsiness Confusion	Consider digoxin toxicity
Dry mouth Dizziness Falls	Reduced blood pressure Diuresis and fluid restriction
Cough	ACE inhibitor therapy
Malaise Lethargy	Hypokalaemia Beta-blocker therapy
Abdominal bloating	Gut wall oedema Constipation

Some drugs used generally in palliative care for symptom control may worsen heart failure and these should be avoided or used with caution. The following table gives guidance with regard to drugs which may cause particular problems. Advice should be sought from the Specialist Palliative Care Team or Heart Failure Team if there are particular concerns.

Drug to avoid	Problematic Side Effects In Heart Failure
Non-steroidal anti-inflammatory drugs	Cause sodium and water retention and can worsen renal function
Steroids	Cause water retention. Risk of hyperglycaemia
Progestogens	Cause water retention
Tricyclic antidepressants	Anticholinergic Can cause cardiac arrhythmias hyponatraemia and postural hypotension Should be avoided in cardiac disease particularly if there is a history of arrhythmias SSRI s and mirtazapine are safer
Cyclizine	Anticholinergic antihistamine. May cause arrhythmias and hypotension. Avoid in severe cardiac failure
Glycopyrronium Hyoscine hydrobromide Hyoscine butylbromide	Anticholinergic Use with caution in cardiac disease
Haloperidol and Levomepromazine	May affect QT and lower blood pressure. Use lowest dose possible
Ispaghula husk	Avoid as this requires increased fluid intake which may not be appropriate with cardiac failure management
Movicol®	Avoid as contains high sodium load and requires increased fluid intake which may not be appropriate with cardiac failure

Many cardiac medications will remain important in managing the patient's symptoms even in the advanced stages of cardiac failure, e.g. furosemide for breathlessness secondary to fluid overload.

Certain cardiac interventions may improve quality of life in cardiac failure even in advanced disease.

For patients who have an implantable device, it is important to establish whether it is purely a pacemaker or a device which includes defibrillator function.

Cardiac resynchronization therapy (CRT)
Also known as the biventricular pacemaker, may be beneficial in carefully selected patients to correct cardiac 'dyssynchrony' *(uncoordinated and inefficient pumping of the right and left ventricles).*

CRT pacing therapy in advanced cardiac failure can improve:

- haemodynamics
- symptoms
- quality of life

Types of device include:

- **CRT-P** (pacing mode)
- **CRT-D** (pacing and defibrillator function)

Some ICDs (Implantable Cardioverter Defibrillators) function purely as defibrillators.

ICDs reduce sudden cardiac death in patients with cardiac failure in those surviving a ventricular arrhythmic event (secondary prevention) and for primary prevention.

Dying phase

In the dying phase, it will be appropriate to review and discontinue some of the patient's medication (in consultation with the Cardiology or Specialist Palliative Care Team)

In general continue with medications with symptomatic benefits and stop those aimed at medium to long term reductions in morbidity and mortality.

Drug rationalisation will need to be tailored to the individual's situation but the following may be useful guidance to be considered in discussion with the Heart Failure team.

Consider continuing with following as they may be providing symptomatic benefit:-

- diuretics *(unless too dehydrated, may be appropriate as CSCI)*
- antianginal medication *(consider transdermal nitrate if patient is not able to take oral medication*
- digoxin *(stopping digoxin may worsen heart failure due to the positive inotropic effects of digoxin)*

Reassess the value of the following and consider stopping

- lipid lowering drugs
- spironolactone
- beta-blockers
- ACE inhibitors or ARBs
- antihypertensives *(monitor BP initially)*

- antiplatelet medication
- anticoagulants
- anti-anginal medication if no symptoms *(monitor for symptom recurrence; consider transdermal nitrate if patient is no able to take oral medication)*

For patients who are in the dying phase and who have an active defibrillator in situ, there is a risk of inappropriate shocking by the device; metabolic or biochemical abnormalities may lead to an agonal cardiac rhythm triggering the defibrillator, a situation which must be avoided in the dying patient.

Proactive deactivation of the defibrillator function of a device according to local guidelines and policy prevents the distress of inappropriate shocks as a patient dies.

It is possible to deactivate the defibrillator function but preserve the pacing mode of CRT-D devices.

References

1. Renal Association http://www.renal.org/whatwedo/InformationResources/CKDeGUIDE/CKDstages.aspx accessed November 2011.

2. Ferro C.J. et al. Management of pain in renal failure. In: Chambers J et al. Editors. Supportive care for the renal patient. 2004. Oxford University Press.

3. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com Ltd 2011.

4. Joint Formulary Commitee (British Medical Association and Royal Pharmaceutical Company). *British National Formulary (BNF 62)*. bnf.org 2011: chap or pp-pp.

5. King S, Forbes K, Hanks GW et al. "A systematic review of the use of opioid medication for those with moderate to severe cancer pain and renal impairment EPCRC opioid guidelines project" *Pall Med.* 25 (5) pp525-552.

6. Douglas C, Murtagh FEM, Chambers EJ, Howse M, Ellershaw J, Symptom management for the adult patient dying with advanced chronic kidney disease: A review of the literature and development of evidence-based guidelines by a United Kingdom Expert Consensus Group; Palliative Medicine 2009; (23) 103.

7. Russon L and Mooney A. "Palliative and end of life care in advanced renal failure"*Clin Med* 2010 vol 10 no.3; pp279-281.

8. MacLaran S, Stein A, Bennett-Jones D, Lee R. Supportive Care Guidelines for patients with End Stage Renal Disease. University Hospitals of Coventry and Warwickshire NHS Trust. 2011 available at http://www.c-a-s-t-l-e.org.uk/tools.aspx

9. Blinderman CD, Homel P, Billings JA, Portenoy RK, Tennstedt SL. "Symptom distress and quality of life in patients with advanced congestive heart failure". J Pain Symptom Management. 2008 Jun;35(6):594-603.

10. "Medical Therapy Guidelines for Chronic Heart Failure", Coventry and Warwickshire Cardiovascular Network, multi-professional working group, version 6, 2007, UHCW e-guidelines 2011 available at http://www.c-a-s-t-l-e.org.uk/tools.aspx

11. Zacharias H, Raw J, Nunn A et al "Is there a role for subcutaneous furosemide in the community and hospice management of end-stage heart failure?" *Pall Med*. 25 (6) pp658-663.

Chapter 9
End of Life Care

The following three End of Life Care tools provide practical guidance and support to help health and social care staff to implement the End of Life Care Strategy:-

Gold Standards Framework (GSF)[1] applies to patients in the last 6-12 months of life. It was developed in primary care. Key points include:

- A palliative care register – this is held by the GP and identifies patients approaching the end of their life. It enables the primary care team to monitor the patient"s progress, anticipate their health and social care needs (including pre-emptive prescribing for anticipated symptoms or complications) and prioritise Advance Care Planning (enabling patients to express their preferences for care at the end of their life)

- Education for all staff involved with end of life care

- Improved communication between disciplines and across care settings during the day and out-of-hours

Preferred Priorities for Care aims to document a patient's preferences for their future care as they approach the end of life:

- The patient's preferences for their health and social care e.g. where they would prefer to be cared for in the final days of life

- Which treatments, if clinically indicated, they would chose to accept or decline, given the likely progression of their condition

Liverpool Care Pathway (LCP)[2] applies to patients in the last days of life.

- It covers aspects of nursing care, medical care, and communication and gives detailed prescribing advice for common symptoms
- It can be implemented in the following care settings: Hospital, community, nursing home or hospice

THE DYING PHASE – USING THE LIVERPOOL CARE PATHWAY

It is important that the patient is known to have advanced disease and that reversible causes of deterioration have been excluded.

Usually the dying phase can be recognised from the following features[3]:

- unconscious / sleeping much of the time
- little interest in food/fluids
- unable to swallow tablets
- largely bed-bound

The assessment that a patient is in the last days of life should be made by the multidisciplinary team in discussion with the patient and relatives as appropriate.

At this stage, only drugs that are required for comfort and symptom control should be prescribed:

a) Stop non-essential medication e.g.

- cholesterol-lowering agents such as statins
- anti-hypertensive drugs
- levothyroxine

Consider whether reducing or stopping steroids in patients with raised intracranial pressure is appropriate.

b) Prescribe medication and ensure available via a suitable route for:-

- pain
- sickness
- sedation
- secretions
- breathlessnss

e.g. subcutaneous injection or syringe driver

c) Essential drugs that cannot be given by the usual route should be changed to an alternative (e.g. anticonvulsants converted to subcutaneous midazolam).

PAIN IN THE DYING PHASE

When the patient is no longer able to swallow oral morphine, change to:

- Continuous diamorphine (or morphine) infusion via a syringe driver (see conversion table on p15).
- Prescribe a PRN dose of subcutaneous diamorphine (or morphine) for breakthrough pain one sixth of the total 24-hour dose of diamorphine. This can be given as frequently as necessary and increased in proportion to any increase in 24-hour dose.
- If the patient is still in pain and the PRN diamorphine (or morphine) has been found to be effective, the 24-hour dose of subcutaneous diamorphine (or morphine) may be increased by the sum of the PRN doses given in the previous 24 hours. *For patients requiring rapidly escalating doses of opioids, contact the Specialist Palliative Care Team for advice.*

- If the patient does not currently have pain, prescribe subcutaneous diamorphine 2.5–5 mg (or morphine 2.5–5 mg) PRN. If after review at 24 hours two or more doses have been required, set up a syringe driver containing diamorphine (or morphine).

If the patient is on an alternative strong opioid and needs to switch to a syringe driver, see Chapter 1 (p15 Relative Strength of Opioids; p23 Discontinuing transdermal Fentanyl) or seek Specialist Palliative Care Team advice.

NAUSEA AND VOMITING IN THE DYING PHASE

See Chapter 2 for the management of nausea and vomiting and the medical management of intestinal obstruction.

RESTLESSNESS AND AGITATION IN THE DYING PHASE[3,4]

In advanced illness, confusion and terminal restlessness/agitation are common.

A prognosis of only hours to days may leave insufficient time for a response to some specific treatments and therefore confusion or agitation should be managed symptomatically.

Before prescribing medication for this condition, all efforts should be made to consider non-drug intervention. For example reassurance from staff, a calm environment, the presence of relatives or carers who are close to the patient, items from home which help to orientate the patient, appropriate diurnal lighting, the possibility of one-to-one nursing.

Common causes of confusion or agitation in the dying phase

- adverse effects of medication (e.g. opioids, steroids)
- pain
- constipation
- urinary retention
- hypoxia
- hypercalcaemia
- infection
- uraemia/ hepatic encephalopathy
- primary brain tumour
- cerebral metastases
- spiritual distress

When considering whether or not to treat these causes of confusion or agitation, the burdens of treatment need to be weighed up against the potential for improving comfort at the end of life.

It may be difficult to address psychological causes of distress and anguish in the last few days of life. Reliance is placed on improving environmental factors and appropriately titrating sedation.

GENERAL MANAGEMENT OF RESTLESSNESS AND AGITATION IN THE DYING PHASE

	Oral PRN	SC stat	SC 24-hour syringe driver*
Midazolam*	-	2.5–5 mg	5–30 mg**
	Especially if anxiety/restlessness predominates.		
Levomepromazine	12.5–25 mg	12.5–25 mg	12.5–75** mg
	Especially if features of paranoia or psychosis are present. Also useful as an antiemetic. Very sedative at higher doses. Smaller doses in elderly		
Haloperidol	1.5–2.5 mg	1.5–2.5 mg	2.5–5mg
	Especially if features of paranoia or psychosis are present. Also useful as an antiemetic. Smaller doses in the elderly		

** Midazolam may cause disinhibition and paradoxical agitation, particularly at high doses.*

*** Start at lowest dose in the range especially in frail elderly patients; review dose every 24 hours and increase if necessary by 30%–50% according to additional as required doses. Higher doses than this are occasionally necessary – seek Specialist Palliative Care Team advice.*

- Patients who are dying with severe agitation may be very resistant to the effects of sedatives and may need repeat doses at 30–60 minute intervals until settled
- Occasionally the combined administration of an anti-psychotic and benzodiazepine is required
- For patients requiring rapidly escalating doses of sedatives, contact the Specialist Palliative Care Team for advice

BREATHLESSNESS IN THE DYING PHASE

For many patients the fear of dying in a state of marked breathlessness with acute anxiety / panic is their biggest, if unspoken, fear.

Advance care planning is essential in order to ensure that patients and their family are as well prepared as possible.

For many patients advancing disease is often associated with reduced awareness. However it is usually prudent to discuss the option of sedation should increased distress become an issue. Most patients are comforted by the knowledge that medication is helpful and available if required.

In the last days of life;
Consider using an end of life care pathway such as the Liverpool Care Pathway.

Prescribe PRN drugs as described below in anticipation of anxiety or distress caused by breathlessness. Many patients will become unable to take drugs by the oral route so prescribe medication to be given parenterally e.g. subcutaneously.

Consider stopping or reducing clinical (artificial) hydration if this is causing fluid overload leading to pulmonary oedema or excessive upper airway secretions.

Drugs
Midazolam 2.5–5mg SC hourly PRN
Morphine 2.5–5mg SC 1–2 hourly PRN (higher doses of morphine may be appropriate in patients who are already receiving regular strong opioids.

In patients who need repeated (hourly) doses seek specialist palliative care advice.) See Chapter 5 Palliation of Breathlessness and Chapter 8 Symptom control in patients with renal disease and cardiac failure.

Patients who are persistently breathless and distressed may benefit from a continuous infusion of morphine and/ or midazolam – in practice try to ascertain the required dose(s) by observing

and titrating according to usage of morphine or midazolam over the previous 24–48 hours.

For some patients in the dying phase it may be more practical to commence an infusion of morphine or midazolam at an earlier stage alongside the provision of additional PRN medication.

The following ranges are usually appropriate:
Morphine 5–10mg sub cut infusion over 24 hours

(higher doses of morphine may be appropriate if the patient is already receiving regular strong opioids for pain)

Combining morphine and midazolam to manage breathlessness in the last days of life is common practice in palliative care.

See also Chapter 5 Palliation of Breathlessness.

RESPIRATORY SECRETIONS IN THE DYING PHASE[5]

Dying patients may be unable to cough effectively or swallow which can lead to retained secretions in the upper respiratory tract. Noisy, bubbly breathing may occur in 70% patients in the terminal phase. There is little evidence to support the effectiveness of drug treatment for this symptom. However it is established clinical practice to use anticholinergic drugs to try to reduce the accumulation of further secretions.

- Explanation and reassurance for relatives and carers is paramount
- Repositioning the patient in bed may be very helpful, for example 'high side lying' where the patient is positioned more upright with their head tilted to one side to aid drainage of secretions. A fan may also be beneficial
- On occasion, for example where there is pooling of saliva in the oropharynx, gentle suction may be appropriate
- Hyoscine butylbromide and glycopyrronium do not usually cause drowsiness, confusion and paradoxical excitation since they do not cross the blood-brain barrier

Anticholinergic Drug	**Subcutaneous Route**	
	STAT/PRN Injection	**Syringe Driver over 24 Hours**
Hyoscine butylbromide	20 mg	60 - 120 mg
Glycopyrronium bromide	200 micrograms	600 micrograms – 1.2 mg
Hyoscine hydrobromide *(also has sedative properties; may exacerbate confusion)*	400 micrograms	1.2 mg – 2.4 mg

SEIZURES IN THE DYING PHASE

Where seizures are anticipated in the dying phase (e.g. primary or secondary brain tumours or in known patients with a previous history of seizures) pre-emptive prescribing of an anti-epileptic by an appropriate route is recommended. This is particularly important in patients who have had recent seizures.

Anti-convulsant medication is usually administered bucally or via a continuous subcutaneous syringe driver (see Chapter 5 for guidance on dosing in continuous subcutaneous infusion). Seek specialist palliative care team advice.

References

1. Thomas K. Caring for the Dying at Home: Companions on the Journey. Radcliffe Medical Press, Oxford. 2003.

2. Ellershaw J and Wilkinson S. Editors. Care of the Dying. A pathway to excellence. Oxford University Press Inc, New York. 2003.

3. Twycross R and Wilcock A. Symptom Management in Advanced Cancer. 3rd edition. Radcliffe Medical Press, Oxford. 2002. Chapter 12 Therapeutic emergencies pp 369-371.

4. Furst CJ and Doyle D. The terminal phase. Pp 1119-1133. In: Doyle D, Hanks G, Cherny N and Calman K. (editors) Oxford Textbook of Palliative Medicine. 3rd edition. Oxford University Press, New York. 2005.

5. Bennett M et al. Using anti-muscarinic drugs in the management of death rattle: evidence-based guidelines for palliative care. Palliative Medicine, 2002, 16:369-374.

6. Twycross R, Wilcock A (Eds). *Palliative Care Formulary*: Fourth Edition. Palliativedrugs.com 2011.

Appendix I

Standards for the use of syringe drivers for subcutaneous administration of drugs

Compatibility chart for commonly used drugs in syringe drivers

The following drugs administered via continuous sub-cutaneous infusion should not be mixed with any other medicine except for diluent e.g water for injections or sodium chloride 0.9%

- Octreotide
- Ketamine- use sodium chloride 0.9% as diluent due the irritant properties of ketamine
- Non-steroidal anti-inflammatory drugs e.g. ketoralac
- Dexamethasone (due to its long duration of action dexamethasone can be administered as a sub-cutaneous injection once (or twice) daily in the morning)

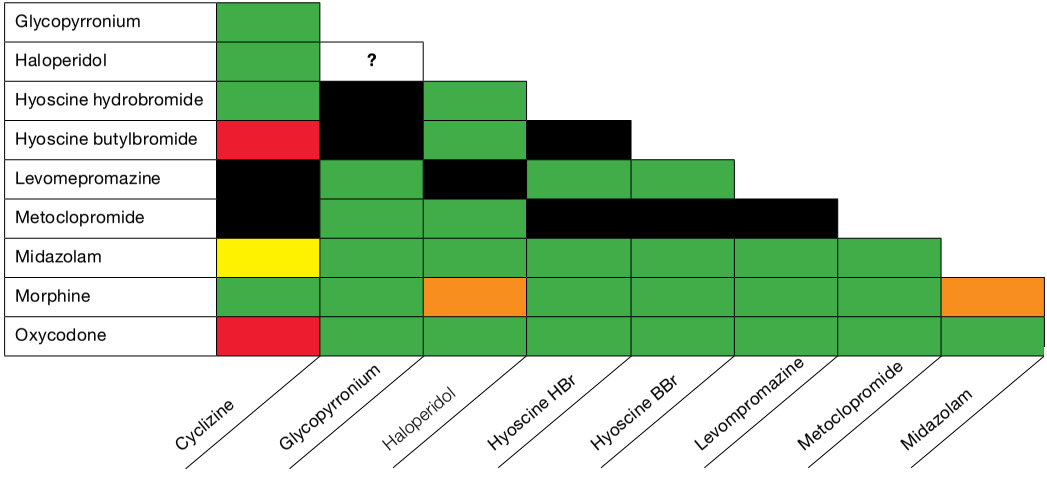
References:

1. www.palliativedrugs.com. Accessed October 2011.

2. www.pallcare.info. Accessed October 2011.

Table X: Compatibility Chart for Two Drugs in Water for Injections

- **Incompatible - DO NOT USE**
- **Caution** - some reports of incompatibility
- **Caution** - Some reports of incompatibility at doses outside those commonly use in palliative care
- **Compatible**
- **Combination not advised clinically**
- **?** **No published data available**



Appendix II

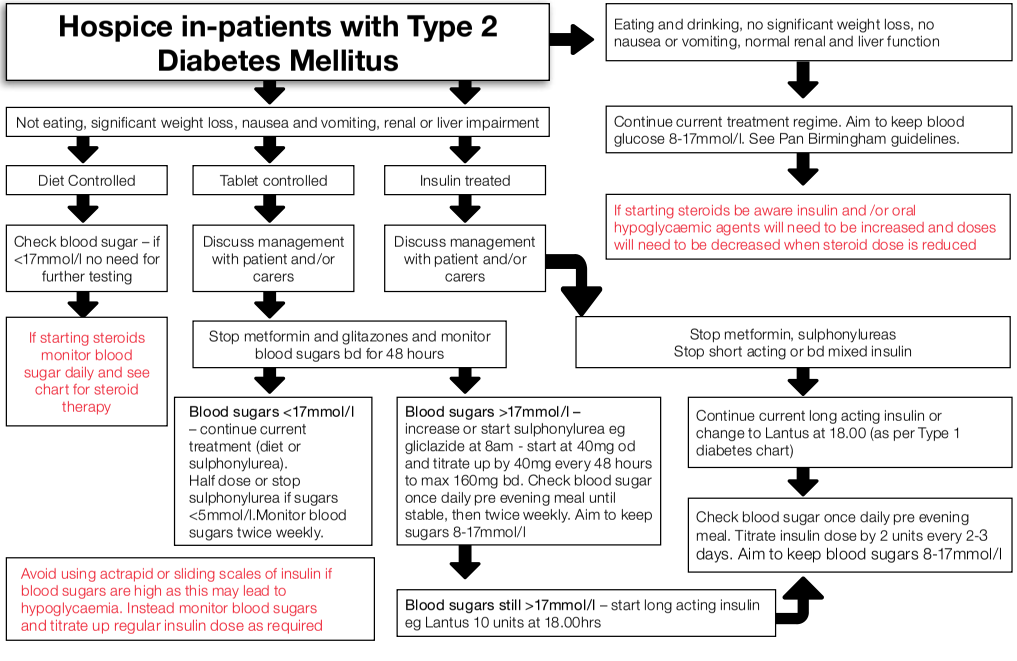
General principles of diabetes management in hospice inpatients

Acknowledgements
Dr Nicky Baker, Staff Grade Doctor, Marie Curie Hospice, Solihull
Marie Curie Hospice Solihull - Diabetes management flow charts, version 2 May 2011

- See also Pan Birmingham Palliative care Network guidelines available at www.birminghamcancer.nhs.uk under important documents, network agreed guidelines, palliative care
- Aims of control are predominantly avoiding hypoglycaemia and symptomatic hyperglycaemia
- Management should reflect the stage of the disease and always follow careful discussion with the patient and/or their carers
- Management should aim to minimise frequency of testing as this is often the most distressing intervention for patients
- Avoid using metformin and glitazones in patients who are rapidly deteriorating or not eating/drinking (unlikely to be effective and risk of lactic acidosis/liver impairment)
- Avoid using bd mixed insulins – risk of lunchtime and overnight hypos
- Avoid using qds regimes which involve multiple testing and injections Avoid giving prn doses of actrapid – rarely achieves control, necessitates frequent testing and may cause evening hypos
- Steroids given as a single dose in the morning cause lunchtime and evening hyperglycaemia
- Steroids given bd cause marked continuous hyperglycaemia
- Long acting insulins given in patients with steroid induced diabetes may cause overnight/fasting hypos

References

Pan Birmingham Palliative Care Network (2008) Management of diabetes mellitus in palliative medicine. Available at http:// www.birminghamcancer.co.uk/
Ford-Dunn S et al (2006) Management of diabetes during the last days of life: attitudes of consultant diabetologists and consultant palliative care physicians in the UK. Palliative Medicine 20:197-203
Usbourne C, Wilding J (2003) Treating diabetes in palliative care patients. European Journal of Palliative care 10(5):187-8
McCann M et al (2006) Practical management of diabetes mellitus. European Journal of Palliative Care 13(6):226-9
Boyd K (1993) Diabetes mellitus in hospice patients: some guidelines. Palliative Medicine 7:163-4
Bournemouth Dying with Diabetes Protocol. Available at http://www.pccongress.org.uk/speakers/Tristan%20Richardson%20-%20print%20only.pdf


Hospice in-patients with Type 2 Diabetes Mellitus
Eating and drinking, no significant weight loss, no nausea or vomiting, normal renal and liver function
Continue current treatment regime. Aim to keep blood glucose 8-17mmol/l. See Pan Birmingham guidelines.
If starting steroids be aware insulin and /or oral hypoglycaemic agents will need to be increased and doses will need to be decreased when steroid dose is reduced
Not eating, significant weight loss, nausea and vomiting, renal or liver impairment
Diet Controlled
Tablet controlled
Insulin treated
Check blood sugar – if <17mmol/l no need for further testing
Discuss management with patient and/or carers
Discuss management with patient and/or carers
If starting steroids monitor blood sugar daily and see chart for steroid therapy
Stop metformin and glitazones and monitor blood sugars bd for 48 hours
Stop metformin, sulphonylureas
Stop short acting or bd mixed insulin
Blood sugars <17mmol/l – continue current treatment (diet or sulphonylurea). Half dose or stop sulphonylurea if sugars <5mmol/l.Monitor blood sugars twice weekly.
Blood sugars >17mmol/l – increase or start sulphonylurea eg gliclazide at 8am - start at 40mg od and titrate up by 40mg every 48 hours to max 160mg bd. Check blood sugar once daily pre evening meal until stable, then twice weekly. Aim to keep sugars 8-17mmol/l
Continue current long acting insulin or change to Lantus at 18.00 (as per Type 1 diabetes chart)
Check blood sugar once daily pre evening meal. Titrate insulin dose by 2 units every 2-3 days. Aim to keep blood sugars 8-17mmol/l
Avoid using actrapid or sliding scales of insulin if blood sugars are high as this may lead to hypoglycaemia. Instead monitor blood sugars and titrate up regular insulin dose as required
Blood sugars still >17mmol/l – start long acting insulin eg Lantus 10 units at 18.00hrs

Hospice in-patients with Type 1 Diabetes Mellitus

Eating and drinking, no significant weight loss, no nausea or vomiting, normal renal/liver function → Continue current insulin regime. Aim to keep blood glucose 8-17mmol/l. See Pan Birmingham guidelines

Not eating, significant weight loss, nausea and vomiting, significant renal or liver impairment → Starting steroid therapy. Discuss management with member of the diabetes team

Discuss management with patient and/or carers

- Avoid using actrapid if blood sugars high as this may lead to hypoglycaemia.
- Instead monitor blood sugars and titrate up regular insulin dose as required

Stop short acting or twice daily mixed insulin

If on long acting insulin (Levemir, Glargine), continue - reduce dose by 50% if blood sugars <5mmol/l. If on bd mixed regime change to long acting insulin e.g. Lantus*

Management of hypoglycaemia (Blood glucose <3mmol/l)

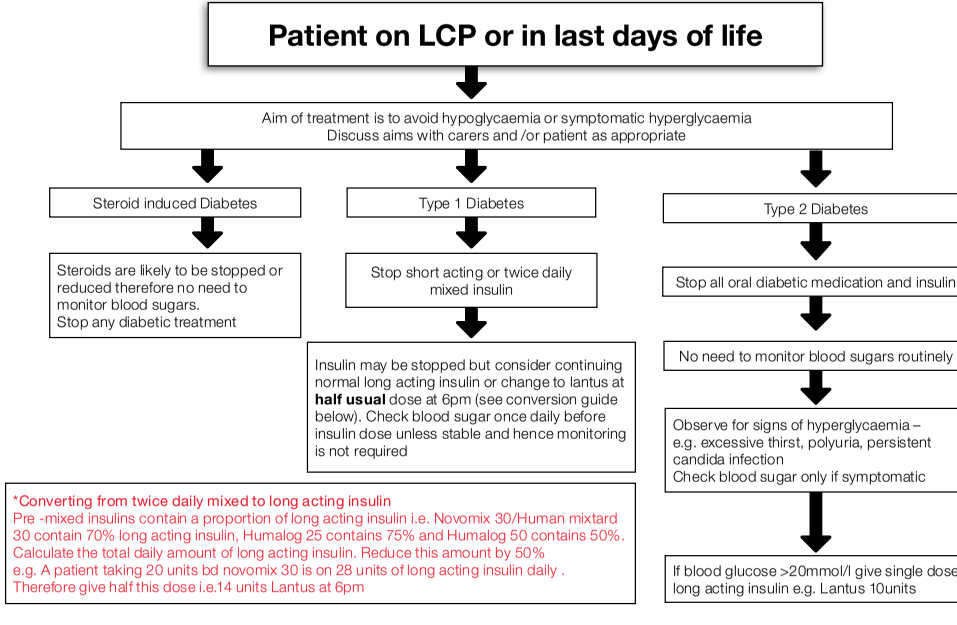
- **Patient conscious –**
  Oral glucose eg 4 teaspoons sugar, 120mls lucozade or glucogel (25g), followed by longer acting carbohydrate e.g. Toast, biscuits
- **Patient unconscious** - 25-50mls 50% dextrose iv OR 1mg glucagon im
- **Glucagon may not be effective in patients with marked cachexia**
- **Hypoglycaemia related to sulphonylureas may be prolonged (up to 72 hours)**

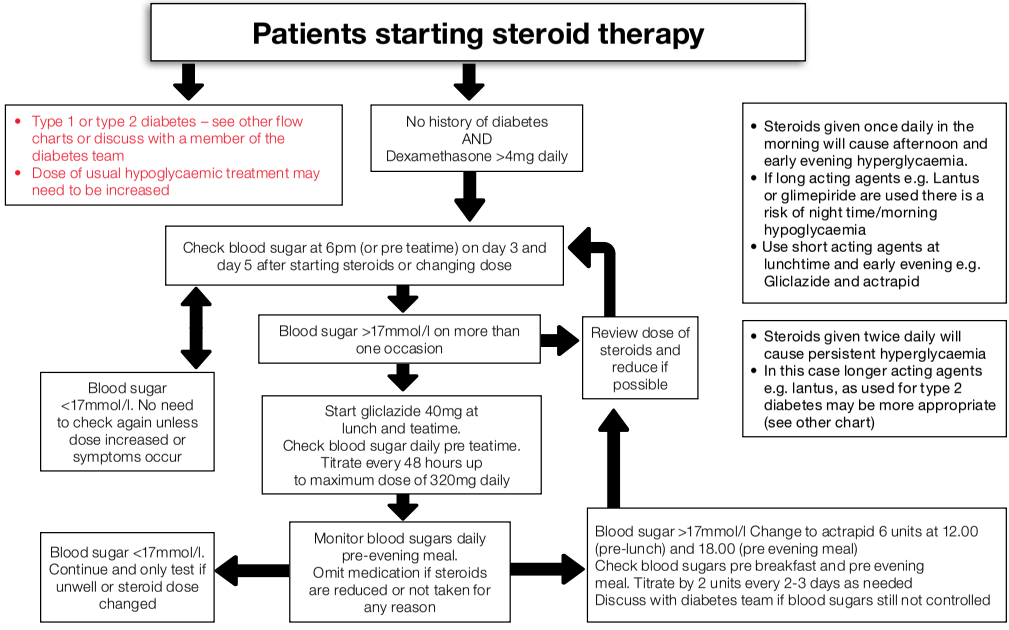
Monitor blood sugars twice daily (8am and 5pm) until stable and then once daily prior to insulin dose. Aim for blood sugars 8-17mmol/l. Titrate insulin by 2 units every 2-3 days.

*Converting from twice daily mixed to long acting insulin

- Pre -mixed insulins contain a proportion of long acting insulin i.e. Novomix 30/Human mixtard 30 contains 70% long acting insulin, Humalog 25 contains 75% and Humalog 50 contains 50%.
- Calculate the total daily amount of long acting insulin. Give 80% of this amount as Lantus once daily. If blood sugars are low reduce this to 50% of the original long acting dose.
- e.g. A patient taking 20 units bd Novomix 30 is on 28 units of long acting insulin daily. Therefore give 22 units Lantus od, or 14 units if blood sugars <5

If condition improves – discuss ongoing management with the patient and/or family - consider restarting previous insulin regime


Patient on LCP or in last days of life
Aim of treatment is to avoid hypoglycaemia or symptomatic hyperglycaemia
Discuss aims with carers and /or patient as appropriate
Steroid induced Diabetes
Steroids are likely to be stopped or reduced therefore no need to monitor blood sugars.
Stop any diabetic treatment
Type 1 Diabetes
Stop short acting or twice daily mixed insulin
Insulin may be stopped but consider continuing normal long acting insulin or change to lantus at **half usual** dose at 6pm (see conversion guide below). Check blood sugar once daily before insulin dose unless stable and hence monitoring is not required
Type 2 Diabetes
Stop all oral diabetic medication and insulin
No need to monitor blood sugars routinely
Observe for signs of hyperglycaemia – e.g. excessive thirst, polyuria, persistent candida infection
Check blood sugar only if symptomatic
If blood glucose >20mmol/l give single dose long acting insulin e.g. Lantus 10units
*Converting from twice daily mixed to long acting insulin
Pre -mixed insulins contain a proportion of long acting insulin i.e. Novomix 30/Human mixtard 30 contain 70% long acting insulin, Humalog 25 contains 75% and Humalog 50 contains 50%.
Calculate the total daily amount of long acting insulin. Reduce this amount by 50%
e.g. A patient taking 20 units bd novomix 30 is on 28 units of long acting insulin daily .
Therefore give half this dose i.e.14 units Lantus at 6pm


Patients starting steroid therapy
• Type 1 or type 2 diabetes – see other flow charts or discuss with a member of the diabetes team
• Dose of usual hypoglycaemic treatment may need to be increased
No history of diabetes AND Dexamethasone >4mg daily
• Steroids given once daily in the morning will cause afternoon and early evening hyperglycaemia.
• If long acting agents e.g. Lantus or glimepiride are used there is a risk of night time/morning hypoglycaemia
• Use short acting agents at lunchtime and early evening e.g. Gliclazide and actrapid
Check blood sugar at 6pm (or pre teatime) on day 3 and day 5 after starting steroids or changing dose
Blood sugar >17mmol/l on more than one occasion
Review dose of steroids and reduce if possible
• Steroids given twice daily will cause persistent hyperglycaemia
• In this case longer acting agents e.g. lantus, as used for type 2 diabetes may be more appropriate (see other chart)
Blood sugar <17mmol/l. No need to check again unless dose increased or symptoms occur
Start gliclazide 40mg at lunch and teatime. Check blood sugar daily pre teatime. Titrate every 48 hours up to maximum dose of 320mg daily
Blood sugar <17mmol/l. Continue and only test if unwell or steroid dose changed
Monitor blood sugars daily pre-evening meal. Omit medication if steroids are reduced or not taken for any reason
Blood sugar >17mmol/l Change to actrapid 6 units at 12.00 (pre-lunch) and 18.00 (pre evening meal)
Check blood sugars pre breakfast and pre evening meal. Titrate by 2 units every 2-3 days as needed
Discuss with diabetes team if blood sugars still not controlled

Appendix III

Specialist palliative care services in the West Midlands

Coventry and Warwickshire

Coventry Community Specialist Palliative Care Team
Newfield House
Kingfield Road
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Telephone: 02476 237 001
Fax: 02476 237 008
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Helen Keane
Carole Parkes
Claire Plumb
Chris Speculand
Sarah Ranson
Macmillan Palliative Care Physiotherapist: Jackie Todd
Macmillan Palliative Care Occupational Therapist:
Sue Bergin

UHCW University Hospital Coventry Specialist Palliative Care Team
Arden Cancer Centre
University Hospital
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Fax: 02476 964 609
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Dr Sarah MacLaran 02476 965500 (internal x25500)
Macmillan Palliative Care Clinical Nurse Specialists:
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Sharon Hollyoak bleep 2329
Sarah Grant bleep 2246
Helen Jones bleep 2309
Macmillan Palliative Care Pharmacist:
Pip Colenutt bleep 1251

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Medical Director: Dr Carole Tallon
Director of Nursing and Care Services: Margot Emery
Inpatient Consultants:
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Dr Jo Poultney
Outpatient Consultant:
Dr Daniel Munday
Day Hospice Sister: Jill O'Keefe
Lymphoedema Practitioner:
Karen Hunt
Counselling and Family Support Services Lead
Helen Cressey
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mytonhospice.org/referrals.html
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Sarah Salisbury
Adele Tregartha

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Warwickshire Community Health
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Sister: Camilla Brooks
Lymphoedema Practitioner:
Karen Hunt

Counselling and Family Support Services Lead
Helen Cressey
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http://www.mytonhospice.org/referrals.html
Enquiries about referrals:
Community Liaison Officer:
Diane Hannon
07544 570 021

Warwick Myton Hospice (Inpatients/Day Hospice/ Lymphoedema)
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Inpatients:
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Associate Specialist:
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Assistant Director of Nursing:
Karen Pedley
Day Hospice Sister:
Ann Braithwaite
Lymphoedema Practitioner:

Karen Hunt
Counselling and Family Support Services Lead
Dawn Nevin
Referrals:
http://www.mytonhospice.org/referrals.html
Enquiries about referrals:
Community Liaison Officer:
Diane Hannon 07544 570 021

Shakespeare Hospice
(Day Hospice, Hospice at Home)
www.theshakespearehospice.org.uk
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Church Lane, Shottery
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Head of Clinical Services:
Bev Ballinger
Medical Officer:
Dr Hazel Blanchard, GP
Lead Nurse: Kay Sadreddini
Counselling and Bereavement Service Lead:
Marisa Parker
Family Support Service Lead:
Mandy Alexander
Information and Support Service Lead: Alison Burford

Herefordshire

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Fax: 01432 851022
Chief Executive Officer:
Mrs Nicky West
Medical Director : Dr Tony Blower
Director of Nursing Services:
Jane Mason
Consultants: (inpatient/outpatient)
Dr Tony Blower
Dr Sally Johnson
Day Hospice Manager:
Nickatie Demarco
Counselling and Bereavement Services Lead:
Beth Allen (Counsellor)
Ray Owen (Psychologist)
Family Support Service Lead:
Sara Higginson
Referrals:
JSpink@st-michaels-hospice.org.uk
Enquiries about referrals:
Jane Spink (Medical Secretary)
Wye Valley NHS Trust
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c/o St Michael's Hospice,
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Secretary: Lorraine Webb
Consultants: Dr Tony Blower
Dr Sally Johnson

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Medical Secretary: Carrie Bolton
Palliative Care Clinical Nurse Specialists:
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Kim Horton
Gaynor Davies
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Shropshire

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Matron: Mrs Heather Palin
Beds: 16+
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Fax: 01952 221360
Consultant: Dr D Willis
Beds: 8

Servern Hospice CNS Team
(SW Shropshire)
Church Stretton Medical Practice Church Stretton
Shropshire SY6 6BL
Telephone: 01694 723811
Fax: 01694 723811

St Giles Hospice
Fisherwick Road
Whittington, Lichfield, WS14 9LH
Telephone: 01543 432031
Fax: 01543 433346
Medical director:
Dr Pamela Choudhury
Director of Nursing:
Ms Sarah Riches Beds: 27
Website: www.st-giles¬hospice.org.uk

Douglas Macmillan Hospice
Email address www.dmhospice.org.uk
Barlaston road, Blurton, ST3 3NZ
Telephone: 01782344300
Fax number 01782344301
Chief executive officer:
Michelle Roberts
Medical director: Dr Claire Hookey
Director of Inpatient Nursing

Services: Jeanette McCarthey
Consultants: (inpatient/outpatient)
Dr Claire Hookey
Dr Emer McKenna
Dr Sarah Kelt
Day hospice sister: Nicci Williamson
Lymphoedema practitioner: Carolyn Wilkinson
Counselling and Bereavement Services Lead: Andrea Ryder
Family support Service Lead: Kevin Chesters
Enquiry email:
post@dmhospice.org.uk
Enquiries about referrals:
Sue Brown
Beds 24

Community Specialist Palliative Care team
Douglas Macmillan hospice
Community Macmillan Team
Barlaston Road, Blurton ST3 3NZ
Telephone number:
01782 344300
Fax: number 01782344301
Director of community services:
Chris Ekin
Consultant: Dr Emer McKenna
Community Lodges
Gill Kirkland
Macmillan Palliative Care Clinical Nurse Specialists
(Senior Members)
Jane Bradshaw
Julie Gater
Dawn Mountford
Nikki Morgan
Tish Bird
Alison element
Hospice at Home Lead:
Sally Neave

Hospital Palliative Care Team
Cancer Centre
University Hospital of North Staffordshire
Stoke on Trent
ST4 7QG
Telephone: 01782 554087
Consultants: Dr Sarah Kelt
Dr Claire Hookey
Nurse Consultant:
Jane Thompson-Hill

Palliative Care Services
Oncology Department,
Queens Hospital Belvedere Road
Burton-on-Trent, DE13 0RB
Telephone: 01283 566333
ext 5033/4
Fax: 01283 593041
Associate Specialist: (St Giles)
Dr Alison Grove
Consultant in Palliative:
Medicine (Macmillan Unit, Derby)
Palliative Care Lead:
Dr Joanna Hocknell
CNS Julie Tipper
CNS Palliative Care
Helen Bruce
CNS Palliative Care
Clare Crampton

Katharine House Hospice
Weston Road
Stafford, ST16 3SB
Telephone: 01785 254645
Fax: 01785 247803
Director of nursing services:
Catherine Howlett
Medical director:
Dr Elizabeth Hindmarsh
Beds: 10+

Macmillan Palliative Care Team
Staffordshire General Hospital
NHS Trust, Weston Road,
Stafford ST16 3SA
Telephone: 01785 230608/230658
Fax: 01785 230853
Consultant: Dr Sarah Pickstock
Lead Nurse: Corinne Maisey

Stafford Community Macmillan
Service Trentside Clinic
Stafford Street, Stone
Stafford ST15 OTT
Telephone: 01785 814817
Fax: 01785 247803
Consultant: Dr Sarah Pickstock
Lead Nurse: Anne Birkett

West Midlands

Compton Hospice
Email:
admin@comptonhospice.org.uk
Compton Road West, Compton
Wolverhampton, WV3 9DH
Telephone: 0845 2255497
Fax: 01902 745232
Chief Executive officer:
Mr Ron Middleton
Medical director: Dr D Pearson
Director of nursing & education:
Mrs Katrina Poulson
Consultants: Dr Debbie Pearson
Dr Fran Hakkak
Dr Clare Marlow
Dr Benoit Ritzenthaler
Dr Joanne Bowen
Day hospice sister:
Mrs Ann Millington
Lymphoedema practitioner:
Dr Stacy Pugh
Counselling: Mrs Jane Rowley
Bereavement services:
Mrs Dodie Graves
Family support service lead:
Mrs Jane Rowley
Palliative care pharmacist:
Ms Renate Boethling
Referrals email:
admin@compton-hospice.org.uk
Enquiries about referrals:
0845 22 55 497
medical secretaries
Beds: 22+

Compton Hospice
Community Specialist
Palliative Care Team
Compton Hospice,
4 Compton Road West,
Wolverhampton, WV3 9DH
Telephone: 0845 2255497
Fax number: 01902 745232

Consultants:
Dr Fran Hakkak (Clinical Lead),
Dr Jo Bowen,
Dr Ben Ritzenthaler
Lead for Macmillan Palliative Care Clinical Nurse Specialists:
Mrs Ann Millington
Hospice at home Lead:
Mrs Pam Magee

Hospsital Specialist Palliative Care Team
New Cross Hospital
Wednesfield Road,
Wolverhampton, WV10 0QP
Telephone: 01902 695212
Fax: 01902 695787
Consultants:
Dr Clare Marlow (Clinical Lead)
Dr Fran Hakkak
Lead Nurse: Mr Mark Perrin

Bradbury House Day Hospice
Bradbury House Day Hospice,
494 Wolverhampton Rd,
Oldbury, West Midlands,
B68 8DG.
Telephone: 0121 612 2928/3971
Fax number 0121 612 2925
Consultants: Dr Diana Webb
Dr Anna Lock
Day hospice sister:
Cecelia Thouless

Sandwell Community Palliative Care Team
Bradbury House Day Hospice,
494 Wolverhampton Rd,
Oldbury, West Midlands, B68 8DG
Telephone: 0121 612 2928/3971
Fax number 0121 612 2925
Consultants: Dr Diana Webb
Dr Anna Lock
Lead Nurse: Carol Leiper

Macmillan Palliative Care Team
Sandwell & West Birmingham
NHS Trust, City Hospital,
Dudley Road, Birmingham B18 7QH
City Hospital
Telephone: 0121 507 5296
Fax: 0121 507 5296
Sandwell Hospital
Telephone: 0121 507 2511
Fax: 0121 507 3711
Consultants: Dr Anna Lock
Dr Diana Webb
Lead Nurse: Kate Hall

St Giles Hospice Walsall
Walsall Palliative Care Centre
Goscote Lane, Walsall WS3 1SJ
Telephone: 01922 602540
Fax: 01922 602541
Medical Director:
Dr Pamela Choudhury
Clinical Nurse Manager
Helen Simkins

Mary Stevens Hospice
Email:
info@marystevenshospice.co.uk
221 Hagley Road Oldwinsford,

Stourbridge, DY8 2JR
Telephone: 01384 443010
Fax: 01384 373731
Beds: 10+
Chief Executive Office:
Mr Peter Holliday
Medical Director: Dr Lucy Martin
Director of Nursing and Patient Support Services:
Mrs Jackie Kelly
Palliative Care Physicians:
Dr Gillian Love
Dr Julia Pole,
Dr Victoria Smart
Dr Katy Trevethick
Ward Manager: Ms Claire Towns
Day Hospice Team Leader:
Mrs Linda Ellis
Community Support Sisters:
Mrs Marie Faux
Mrs Liz Cooper
Bereavement Services:
Mrs Marie Faux
Palliative Care Pharmacist:
Miss Julie McCarthy
Enquiries about referrals:
01384 443010
Lymphoedema Nurse Specialists: LymphCare UK
Mary Warrilow, Kris Jones
Telephone: 01384 365014
Fax: 01384 366551
email: lymph@dudley.nhs.uk

Dudley Macmillan Palliative Care Team
Kingswinford Health Centre
Standhills Road, Kingswinford
Dudley DY6 8DN
Telephone: 01384 366662
Fax: 01384 366663

Stourbridge Health & Social Care Centre
John Corbett Drive, Stroubridge
West Midlands, DY8 4JB
Telephone: 01384 323772
Macmillan GP Facilitator
Dr Lucy Martin
Email: lucy.martin@dudley.nhs.uk
Palliative Care Team
Russells Hall Hospital, Dudley,
DY1 2HQ
Telephone: 01384 244238
Consultants: Dr Ben Ritzenthaler
Dr Jo Bowen

Macmillan Clinical Nurse Specialists
Top Floor, East Wing
Manor Hospital, Walsall W22 9PS
Telephone: 01922 656253/721172 ext 7111
Fax: 01922 656253
Macmillan Palliative Care Team
Sandwell & West Birmingham NHS Trust, G278 Bryan Knight Suite, Sandwell General Hospital Lyndon,
West Bromwich B71 4HJ
Telephone: 0121 507 2511
Fax: 0121 507 3711
Consultants: Dr Anna Lock
Dr Diana Webb

Birmingham St Mary's Hospice
176 Raddlebarn Road, Selly Park
Birmingham B29 7DA
Telephone: 0121 472 1191
Fax: 0121 472 5075
Consultant: Dr Lucia Birch
Head of nursing:
Trisha Castanheira
Community Specialist Palliative Care Team
Team leader:
David Edwards
Beds: 27+

John Taylor Hospice Community Interest Company
76 Grange Road, Erdington
Birmingham B24 0DF
Telephone: 0121 465 2000
Fax: 0121 465 2010
Chief Executive Officer:
Kate Phipps
Medical Director: Dr Diana Webb
Director of Nursing Services:
Nicola Tongue
Consultants: (inpatient/outpatient)
Dr Diana Webb
Day Hospice Sister:
Ann-Marie Lockett
Counselling and Bereavement Services Lead:
Jayne Small and Lynne Walsh
Family Support Lead:
Jayne Small and Lynne Walsh
Deputy Medical Director:
Dr Deedar Bhomra
Medical Team:
Dr Diana Webb (Consultant)
Dr Rachel Whitehorn
Dr Liz Freshwater
Dr Mohammed Azam
Dr Deedar Bhombra
Director of Clinical Services:
Nicola Tongue
Associate Director of Clinical Services: Tracey Doherty
Counselling and Bereavement Services and Family Support Lead:
Jayne Small and Lynne Walsh
Hospice at Home Team
Telephone: 0121 465 2000/2039
Fax: 0121 465 2010

Palliative Clinical Nurse Specialists (Macmillan)
Birmingham North
Birmingham East
Heart of Birmingham
Telephone: 0121 465 2028

S.P.E.C.I.A.L.I.S.T. MDT
Senior Social Worker:
Don Russell
Clinical Specialist Dietician:
Sue Mackie
Clinical Specialist Occupational Therapists, Team Lead: Faye Collins
Clinical Specialist Physiotherapist: Louise Tipton
Viz Ramasamy
Senior Specialist Clinical Pharmacist: Louise Seager
Specialist Clinical Pharmacist
Joanne Arasaradnam

Medicines Management Technician: Lisa Wall-Hayes
Telephone: 0121 465/2000/2002
Day Hospice: Ann-Marie Lockett
In-patient Unit Manager: Jan Hipkiss

Macmillan Palliative Care Team
Good Hope Hospital,Rectory Road, Sutton Coldfield, B75 7RR
Telephone: 0121 378 2211 ext 1316
Fax: 0121 378 6196
Consultant: Dr Lisa Boulstridge
Lead Nurse: Alison Harrison

Macmillan Palliative Care Team
Sandwell & West Birmingham NHS Trust, City Hospital
Dudley Road, Birmingham B18 7QH
Telephone: 0121 507 5296
Fax: 0121 507 4009
Consultants: Dr Anna Lock
Dr Diana Webb
Lead Nurse: Kate Hall
Palliative Care Team :
Heart of England NHS Foundation Trust Heartlands Hospital Site, Bordesley Green East Bordesley Green Birmingham B9 5SS
Consultant: Dr Chantal Meystre
Lead nurse: Alison Harrison
Telephone: 0121 424 2442
Fax: 0121 424 1139
Solihull Hospital Site
Lode Lane. Solihull B91 2JL
Consultant in Palliative care: Dr Chantal Meystre
Lead nurse: Alison Harrison
Telephone: 0121 424 4127
Fax: 0121 424 4127

Marie Curie Hospice
Solihull 911-913 Warwick Road
Solihull B91 3ER
Telephone: 0121 254 7800
Fax: 0121 254 7840
Bed manager phone: 07979 503158
Palliative Care Pharmacist Michelle Aslett
Telephone: 0121 254 7805
Medical Director: Dr Chantral Meystre
Hospice Manager: Elizabeth Cottier
Consultants: Dr Nikki Reed
Dr Sarah Wells
Ward Manager: Rachel Knighton
Community team leader: Jennifer Brewer
Beds: 17

Solihull Community Specialist Palliative Care Macmillan Team
Solihull Community Services
Heart of England NHS Foundation Trust, 20 Union Road, Solihull, B91 3EF
Consultants: Dr Sarah Wells
Dr Nikki Reed
Lead Nurse: Helen Meehan
Macmillan SPC team
Telephone: 0121 712 8474
Fax: 0121 712 7299
Palliative Care Pharmacist:

Michelle Aslett
Telephone: 0121 254 7805

Single Point of Access (SPA) Hospice at Home Team
Solihull Community Services
Heart of England NHS Foundation Trust
SPA Manager: Sharon Dean
SPA Hospice at Home
Telephone: 0121 712 7272

Fax: 0121 712 7299
Specialist Palliative Care Team
University Hospital Birmingham NHS Trust, 3rd floor Nuffield House (Old QE site) Edgbaston
Birmingham B15 2TH
Telephone: 0121 371 4558
Fax: 0121 371 4556
Consultant in Palliative Medicine:
Dr John Speakman (locum)
Lead Nurse: Kate Claridge

Worcestershire

Kemp hospice
41 Mason Road Kidderminster
DY11 6AG
Telephone: 01562 861217
Fax: 01562 754636
Head of Care: Sue Harrison

Primrose Hospice Centre of Care
St Godwalds Rd, Finstall
Bromsgrove, B60 3BW
Telephone: 01527 871051
Fax: 01527 578317
Nurse Manager: Libby Mytton

St Richards Hospice
Wildwood Drive
Worcester WR5 2QT
Telephone: 01905 763963
Fax: 01905 351911
Care Director: June Patel
Medical Director / Consultant in Palliative Medicine: Dr Nicola Wilderspin
Worcestershire Acute Hospitals Trust

Hospital Macmillan Team
Aconbury East, Worcestershire
Royal Hospital Charles Hastings Way
Worcester WR5 1DD
Telephone: 01905 760758
Fax: 01905 733056

Hospital Macmillan Team
Alexandra Hospital, Woodrow Drive
Redditch B98 7UB
Telephone: 01527 512085
Fax 01527 512197

Worcestershire Health and Care NHS Trust
Bromsgrove/ Primrose at the Princess Unit
Princess of Wales Community Hospital, Stourbridge Road

Bromsgrove B61 0BB
Telephone:
01527 488212/488213
Fax 01527 488275/488066
Consultant in Palliative Medicine: Dr Ian Douglas
Nurse Manager: Dawn Pattison

Evesham Hospital / Macmillan Unit
Evesham Community Hospital
Waterside, Evesham WR11 6JT
Telephone: 01386 502403
Fax: 01386 502504

For further information about the Guidelines please contact:
Dr John Speakman
Locum Consultant in Palliative Medicine
University Hospitals Birmingham
john.speakman@uhb.nhs.uk