

Peterborough Palliative Care In Dementia Group



Compromised Swallowing

A Practical Guide to
Nutrition, Hydration and
Medication in Advanced
Dementia

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Acknowledgements:

The Peterborough Palliative Care in Dementia Group, (PCDG), is a multidisciplinary group drawn from primary and secondary care and the care home sector. It exists to develop and disseminate expertise on working with people with dementia at the end of life. The PCDG has focused on nursing and residential homes, but recognises that many aspects of its work also apply to hospital and community settings. The PCDG aims to provide a local focus for leading and supporting the implementation of national strategies in relation to palliative care in dementia. The Group also provides an education and training function through a series of symposia, presentations at conferences and a website. (www.dementia.jennerhealthcentre.co.uk)

Members have lent their expertise to the development of this guide which provides a practical approach to nutrition, hydration and medication when swallowing is compromised in advanced dementia. In particular, we are very grateful to Dr Sarah Bell, Consultant in Palliative Medicine, Sue Ryder Thorpe Hall Hospice, Peterborough, for guidance on medication.

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COMPROMISED SWALLOWING

Introduction:

People with advanced dementia frequently develop swallowing difficulties. Providing high quality care and good symptom management for patients with compromised swallowing presents one of the most difficult challenges for carers, nurses and doctors.

Section 1 of the guide provides a practical approach to maintaining hydration and nutrition in people with advanced dementia and associated swallowing difficulties. It is written for both carers and nursing and medical staff.

Section 2 of the guide addresses the medical management of symptoms and is a prescribing guide for doctors and nurse prescribers and emergency care practitioners.

CAUSES

The following questions must first be asked about any patient with dementia presenting with swallowing difficulties:

- Is the difficulty of acute or gradual onset?
- What is the likely cause of the difficulty? (see list of commonest causes below)
- Is the condition reversible by treatment?
- Is any proposed treatment in the patient's best interest?

Acute causes

- Oral thrush/oral or dental infection
- Infection e.g. UTI
- Decline in consciousness due to acute episode of illness.
- Acute neurological event. e.g. CVA/TIA
- Medication (antipsychotics, sedatives, anticholinergics)
- Oesophageal foreign body e.g. false teeth

Chronic causes

- Persisting dysphagia post CVA
- Oesophageal stricture or tumour
- Parkinson's disease
- Progression of dementia
- Other progressive neurological conditions e.g. MND, MS, bulbar palsy
- Decline in consciousness as part of chronic cognitive decline
- End of life disease progression
- Depression (loss appetite, food refusal or abnormal perception of food)

For all patients presenting with swallowing difficulties:

- refer for a swallowing assessment and advice from the local Speech and Language Therapist (SALT)
- refer to the Dietician for dietary advice and support

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Section 1: NUTRITION and HYDRATION

Summary

- Difficulty eating is a marker of advanced dementia and the appearance of dysphagia is a sign of further disease progression (Gillick 2000) (Berner 2006).
- In this situation hospital admission because of dysphagia is unlikely to be of benefit to the person with advanced dementia.
- People with dementia who are deemed to have an 'unsafe' swallow can still benefit from careful hand feeding (Dennehy 2006).
- Current evidence shows that there is no benefit to tube feeding in advanced dementia (Finucane et al 1999; Sampson et al 2009).
- Maintaining nutritional health in people with advanced dementia may not always be possible (White 2005).

Nutrition and dementia

Even in the early stage of the disease the symptoms of dementia can have a significant impact on nutritional intake and nutritional status. By late stage dementia the impact on nutrition is profound, with affected people unable to request food or drinks, unable to feed themselves, unable to recognise food, refusing to eat and having significant dysphagia. People with late stage dementia are therefore at significant risk of malnutrition. While it is unlikely to be possible to reverse malnutrition in late stage dementia, it nonetheless remains appropriate to treat malnutrition to maintain or to slow deterioration in nutritional status and consequently quality of life.

It is also important to bear in mind that lower BMI is associated with higher frequency and severity of behavioural problems in people with dementia (White 2005).

'Food First' nutrition support

From the early stages of dementia a 'Food First' approach is recommended for those at risk of malnutrition. It is still appropriate to follow as much of this advice as possible in late stage dementia, even if the person's food and fluid intake is very poor.

- Find out what the person's food preferences were and encourage these foods and fluids. Some people with dementia develop a marked preference for sweet foods so these may be eaten better than savoury foods.
- Ensure appropriate food and fluids are easily available throughout the day and night so that the person with dementia can be encouraged to eat and drink whenever he/she is most alert.

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- If a person with dementia frequently wakes at night it is worth considering whether he/she is waking because of hunger.
- Encourage food and fluids little and often. Many elderly people (with or without dementia) do not have a large appetite, and nutritional needs are more likely to be met via 6 or so small meals and snacks per day rather than 3 bigger meals.
- Encourage higher calorie foods and drinks. Avoiding high fat and high sugar foods at this stage is unlikely to be beneficial to health and may increase the risk of malnutrition. People at risk of malnutrition should therefore generally avoid low fat, low sugar, low calorie and diet foods and drinks.
- Food fortification simply means adding extra high calorie ingredients to foods or drinks and can help to add extra nutrients to food without increasing the volume that needs to be eaten. One of the most versatile fortifiers is dried milk powder (which is a good source of protein, energy and some micronutrients) and can be added to milk for cereal or drinks, custard, porridge, yogurt, milk puddings, cream soups, mashed potato etc. There are many other simple ingredients which can be used to fortify food and drinks.

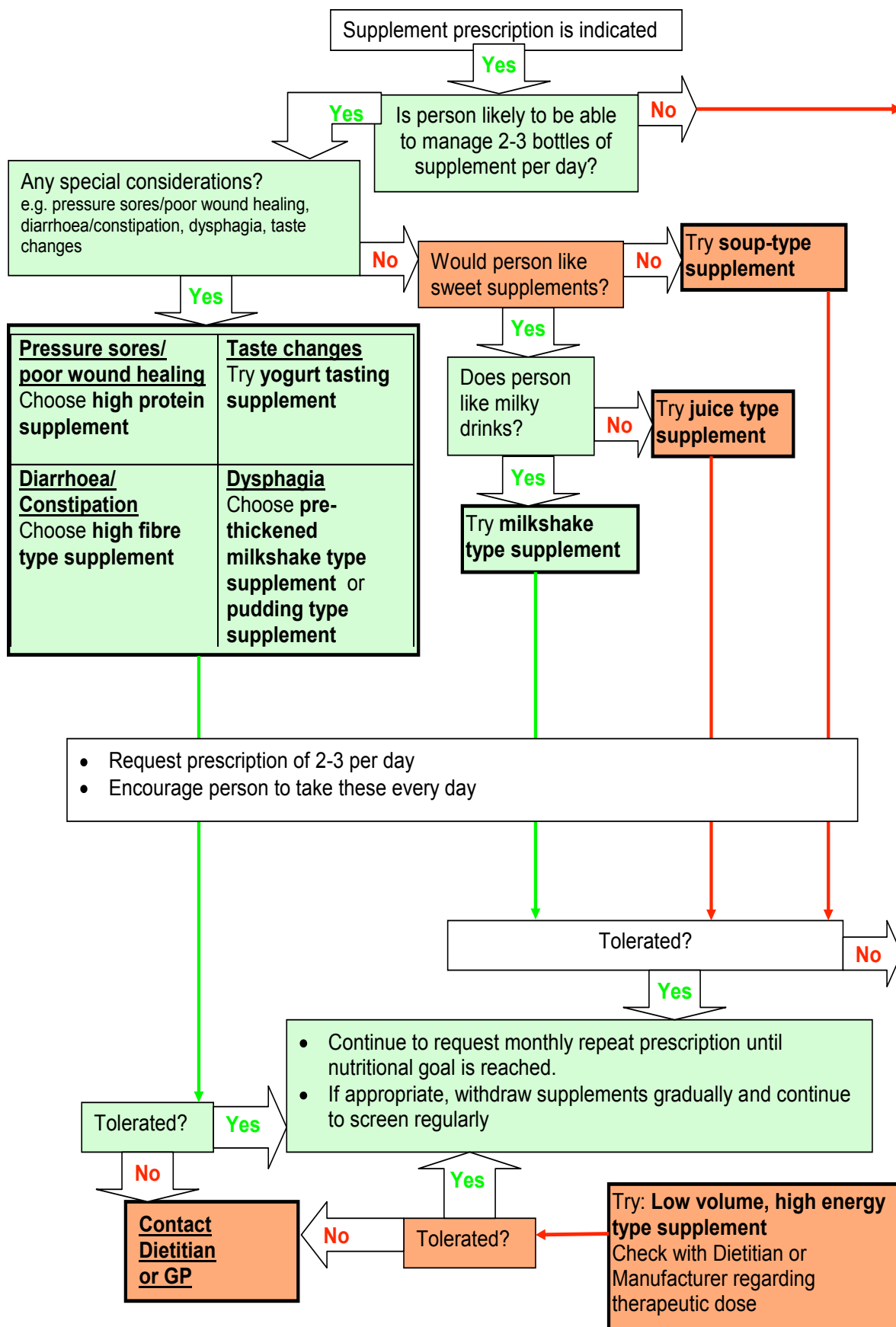
Prescribable nutritional supplements

- In addition to 'Food First' nutrition support measures, prescribable supplements are often also appropriate for people with dementia who are at risk of malnutrition.
- It is important to choose the most appropriate supplement for the individual person and to ensure that it is prescribed in a therapeutic dose (see 'Which Supplement to Choose' Page 7).
- If the person is unable to take the full therapeutic dose, an alternative product which the person is more likely to be able to take should be considered.

Despite all of these nutrition support interventions it is important to be aware that it may not be possible to maintain nutritional status for a person with dementia (White 2005) and tube feeding is no more likely to achieve this than continued oral intake.

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Which Supplement to Choose?



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Tube feeding

A Cochrane Systematic Review: Enteral tube feeding for older people with advanced dementia (Sampson et al 2009) found “no conclusive evidence that enteral tube nutrition is effective in terms of prolonging survival, improving quality of life, or leading to better nourishment or decreasing the risk of pressure sores. It may actually increase the risk of developing pneumonia due to inhaling small quantities of the feed and even death.”

Current evidence points to **careful hand feeding** being the feeding **method of choice** for people with advanced dementia (even in those people deemed to have an ‘unsafe’ swallow), not least because it ensures continuation of human contact and social interaction and can provide both stimulation and comfort, and therefore can help to provide/maintain some quality of life for the person with advanced dementia (Dennehy 2006).

Feeding someone with advanced dementia often takes a considerable amount of time therefore staff will need to be given sufficient time to feed appropriately. The quality of relationship between feeder and person being fed is an important predictor of food intake (White 2005) and people with dementia respond best to feeders who are personal, interested, involved, flexible, calm, cooperative and willing to allow people with dementia control (White 2005).

To date there have been no randomised, controlled trials directly comparing tube feeding and hand feeding but evidence suggests that nutritionally, hand fed patients do at least as well as those who are tube fed.

When considering whether tube feeding (nasogastric (NG) or percutaneous endoscopic gastrostomy (PEG) feeding) is appropriate, it’s important to consider:

- What are you expecting to achieve?
- Are these expectations realistic?
- Has adequate information been shared with relatives and carers to ensure that they do not have unrealistic expectations of what tube feeding can achieve?
- What would the person with advanced dementia have wanted?
- Is tube feeding really in the person with advanced dementia best interests?
- Will the benefits of human contact and stimulation from food (during all meals, snacks and drinks) be lost?

End of life

There is growing evidence that people at the end of life don’t suffer from more than transient hunger and thirst, and they can experience comfort from minimal intake of food and fluid (Gillick 2000).

Experience in palliative care settings suggests that most imminently dying patients die comfortably without artificial hydration (Partridge & Campbell 2007).

A **nil by mouth** instruction should **NOT** be given. It may cause considerable distress to relatives and carers and there is no evidence of harm from continuing to offer small amounts of fluids and food in the terminal stages provided that the patient is correctly positioned and sufficiently alert.

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PRACTICAL STRATEGIES FOR FEEDING AND FLUIDS

Speech and Language Therapy advice should always be sought to assist staff with swallowing strategies and appropriate positioning and to minimise the risk of aspiration or choking for the person with an unsafe swallow. This advice is often very specific to the individual.

In addition the following strategies are likely to help when feeding people with dementia who are deemed to have an unsafe swallow:

- Modified consistency food (soft or pureed) and fluid may be advised as it is safer to swallow (Consult with SALT about appropriate foods/fluid).
- Encourage highly flavoured foods and drinks, e.g. cranberry juice or lemon juice, and food and drinks which are hot or ice cold (but not tepid). These can stimulate a stronger swallow response because they provide more stimulation to the brain than bland and tepid food and drinks.
- Alternate temperature and taste within a meal. e.g. alternate a sweet and savoury spoonful of food to stimulate the swallowing reflex.
- Offer an ice cold drink prior to a meal to stimulate swallowing before eating.
- Use frequent verbal prompts about the food or drink and to encourage the person to swallow. Observe that the person has swallowed before offering another mouthful. Use gentle and physical prompts to encourage self feeding e.g. put the utensil/cup in the person's hand.
- If the person crams food into his/her mouth or eats too quickly, then use verbal prompts to finish each mouthful before taking another bite. Hand over hand feeding may be appropriate to control rate.
- Feed at times of day when the person is at his/her most alert.
- Encourage small amounts of appropriate texture food and fluids frequently throughout the day.
- Try to keep the eating environment as calm and free from distractions as possible.
- Preparation and presentation of food is very important. It is essential to ensure that if someone needs soft or pureed food he/she is provided with the correct texture of food. It is also important to ensure that foods are served separately, not all mixed together, unless the person genuinely prefers them this way.

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Section 2: MEDICATION

Once swallowing difficulties are leading to problems with oral medication, a full review of all medication should be carried out. Consider stopping medication except essential medication for symptom relief.

Stopping medication:

- Hypertension. Doses of antihypertensive medication can often be significantly reduced or stopped when a patient has lost weight in advanced dementia. Tight blood pressure control is no longer the priority.
- Vascular risk factor modification is no longer a priority in advanced dementia and there is no evidence base for continuing statins etc.
- Anticoagulants. If warfarin tablets are not being reliably taken on a daily basis, well controlled INR levels will not be achieved with risk of under or over anticoagulation. Significant changes in dietary food intake can lead to changes in INR.
- Renal Impairment. The risk of significant renal impairment (eGFR <30) rises in older patients and especially if fluid intake is poor. Reduced renal excretion leading to toxicity or increased sensitivity is a potential hazard with many drugs. (e.g. antipsychotics, NSAIDs, benzodiazepines, diuretics. See BNF for full details)

For **ESSENTIAL MEDICATION** consider:

1. Alternative oral preparations:

Liquid, orodispersible, soluble/effervescent

(A maximum daily dose of soluble/effervescent tablets may provide a sodium load in excess of the recommended daily intake and should be used with caution in patients with hypertension and renal impairment)

2. Crushing tablets or opening capsules

Some drugs can be crushed or capsules opened without affecting absorption or bioavailability. For individual drug information see:

www.formulary.cht.nhs.uk/Guidelines/MMC/062b_MedEnt_IndivDrugs.htm

3. Alternative routes of administration for essential medication may be needed:

- Oromucosal (buccal or sublingual, SL)
- Transdermal (TD)
- Subcutaneous: syringe driver (CSCI) or bolus subcutaneous injection (SC)
- Intramuscular injection (IM)
- Intravenous injection (IV)
- Rectal (PR)

4. Covert administration of essential medication may be considered, on rare occasions, for patients who lack capacity. If severe agitation or aggression have led to difficulties ensuring compliance despite all approaches by staff, covert administration in the patient's best interest may be tried. Prior discussion with all involved parties should be held and recorded. (Psychiatrist, GP, senior care home staff and relatives).

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DIABETES MANAGEMENT

For a diabetic patient, the aim should be to keep him/her asymptomatic rather than to try to maintain ideal blood sugar control. Striving to avoid microvascular complications of diabetes is no longer a priority in advanced dementia when patient survival is likely to be less than 12 months.

In advanced dementia many people will have a very poor appetite and limited food intake. They are therefore at significant risk of malnutrition which will only be exacerbated by restricting their diet.

It is common for people with dementia to develop a preference for sweet foods and they may eat better when offered foods with a sweet taste. Restricting these foods to achieve ideal blood sugar control in advanced dementia is likely to adversely affect nutritional intake and quality of life. Diabetic control should be achieved using medication if possible, rather than by restricting diet in any way.

Oral Medication:

- Avoid sulphonylureas if food intake is poor or variable - risk of prolonged hypoglycaemia.
- Metformin is available as a liquid preparation. Tablets can be crushed.
- With pre-existing renal impairment and poor fluid intake consider reducing or stopping oral hypoglycaemics.

For patients already on Insulin:

- Consult the local diabetic specialist team for advice and ongoing support.
- More frequent short acting insulin regimes may be advised tailored to the variable food intake to reduce the risk of hypoglycaemia.
- Lack of understanding due to advanced dementia may make some patients very resistant to repeated finger prick glucose testing and insulin injections.
- Symptoms of hypoglycaemia, such as behavioural change, may be masked by advanced dementia. Individual patients often show a consistent pattern.
- Intercurrent infections are common in advanced dementia. Look for UTI/chest infection in patients with rising glucose levels despite poor oral intake. Check for urinary ketones if blood glucose levels are $>20\text{mmol/L}$. Hyperglycaemic ketoacidosis will need hospital admission and treatment.

Hypoglycaemia (RBG $< 2.5\text{mmol/L}$)

- 2 teaspoons sugar (=10g dose) dissolved in milk, which can be thickened if required, orally. Repeated after 10-15minutes prn.
- Glucogel (10g/25g tube) placed next to the buccal mucosa. Rubbing of cheek externally helps absorption. Repeated after 10-15minutes prn.
- Glucagon 1mg SC, IM or IV. It is less likely to be effective in patients with malnutrition or cachexia. If no response within 10minutes, IV glucose must be given (20-50mls of 20% glucose IV infusion through large vein with large bore needle– venous access may be difficult).

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PAIN

- Consider the use of a pain assessment scale, (e.g. Doloplus-2), to identify pain and monitor response to analgesia in patients with advanced dementia.
- For patients already taking opioids, follow standard dosing advice for conversion of regular oral analgesia to TD patch if prognosis is weeks-months or a CSCI if prognosis is days-weeks. Parenteral prn doses will also need calculating. (see BNF : Prescribing in palliative care or contact your local Palliative Care Team)
- In end of life situations where the prognosis is short, for patients already on a patch and requiring regular further analgesia, give via CSCI **in addition to** the patch.

MEDICATION	FORM	DOSE	INDICATIONS/DISADVANTAGES
Paracetamol	Suppositories 500mg	max 4g per 24hours	PR administration in patients with dementia may be misinterpreted as assault causing distress and/or resistance.
Diclofenac	Suppositories 25, 50, 100mg	max 150mg per 24hours in divided doses	PR administration in patients with dementia may be misinterpreted as assault causing distress and/or resistance.
Morphine	bolus SC injection	1.25-2.5mg starting dose in opioid naive	Potential side effects: nausea and vomiting, constipation, opioid toxicity.
	CSCI	5-10mg over 24hrs starting dose in opioid naive	Delay of 1-2 hours before onset of analgesia using CSCI. If currently in pain give bolus injection at onset to cover delay. May need to add anti-emetic to syringe driver. Requires nursing staff trained in use of syringe drivers or on call District Nursing service to supply, set up and run.
Diamorphine	bolus SC injection	1.25-2.5mg starting dose in opioid naive	Side effects as for morphine
	CSCI	5-10mg over 24hrs starting dose in opioid naive	
Oxycodone	bolus SC injection	1-2mg starting dose in opioid naive	Less accumulation in severe renal impairment. Consider if development of opioid toxicity with morphine or diamorphine.
	CSCI	5mg over 24hrs starting dose in opioid naive	
Alfentanil	CSCI	0.5-1mg over 24hrs starting dose in opioid naive	Opioid of choice in severe renal failure as does not accumulate.

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MEDICATION	FORM	DOSE	INDICATIONS/DISADVANTAGES
Buprenorphine	Sublingual tablets	200, 400mcg Dose 200-400mcg every 6-8hrs	200mcg is equivalent to 15mg of oral morphine– may be too high as a starting dose for an opioid naïve patient. Side effects: nausea and vomiting, dizziness, drowsiness and headache. Buprenorphine has a much longer duration of action than morphine and effects are only partially reversed by naloxone. (Dose of naloxone required approx 10x as much as for other opioids.) Many patients with advanced dementia and compromised swallowing will have a very dry mouth leading to potentially inadequate absorption of SL tablets.
Buprenorphine	TD patch	BuTrans: 7 day patches delivering 5, 10, 20mcg/hour. Transtec: 4 day patch delivering 35, 52.5, 70mcg/hour	TD route is contraindicated for the management of acute pain or severely uncontrolled pain which requires rapid titration. There is a minimum of a 12 hour delay before onset of analgesia when the first patch is applied. For opioid naïve patients the lowest strength patch should be prescribed. Morphine dose equivalence of 5mcg patch is 12mg/24hrs. Side effects as above. Rate of absorption may be increased if underlying skin becomes vasodilated (e.g. febrile patient, external heat source such as heat pad) or reduced by excessive sweating.
Fentanyl	TD patch	72hour patches delivering 12, 25, 50, 100mcg/hour	The 12mcg fentanyl patch is equivalent to 30mg oral morphine over 24hours. The 25mcg fentanyl patch is equivalent to at least 60mg oral morphine over 24hours. Caution as this may be too much in the opioid naïve patient with side effects of opioid toxicity (confusion, agitation or sedation, nausea and vomiting, respiratory depression) occurring more commonly. There is a minimum of a 12 hour delay before onset of analgesia when the first patch is applied. Less constipating than morphine. Absorption problems as for buprenorphine

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INCIDENT PAIN

- To cover episodes of care which cause pain such as turning for washing and changing clothes, ulcer dressings etc.
- Dose bears no relation to background analgesia being used so always start with lowest dose and titrate up.
- Caution in the opioid naive patient. Licence is for use in patients already receiving maintenance therapy of at least 60mg oral morphine or equivalent per day.
- Different preparations are not interchangeable and dose titration needs to be restarted if changing preparation.

MEDICATION	FORM	DOSE	INDICATIONS/DISADVANTAGES
Fentanyl	Fentanyl citrate injection 50mcg/ml. 2ml ampoules	Break ampoule and place 0.5-2mls sublingually.	Hold in mouth for 2-3minutes Onset of analgesia after 15mins. Lasts 30-45mins approx. Useful to cover e.g. wound/ulcer dressings.
Actiq	Fentanyl citrate lozenge 200mcg-1.6mg strength range	Initial dose 200mcg rubbed against buccal mucosa over 15mins. If ineffective, repeat x1 after 15mins	Requires patient co-operation and absorption may be affected by dry mouth
Abstral	Fentanyl citrate sublingual tablet 100-600mcg dose range	Initial dose 100mcg sublingual If ineffective, repeat after 15-30mins	Dry mouth may make absorption poor or erratic. No food or drink to be taken during absorption.
Effentora	Fentanyl citrate Buccal tablet 100-800mcg dose range	Initial dose 100mcg placed in buccal cavity If ineffective, repeat after 15-30mins	Dry mouth may make absorption poor or erratic. No food or drink to be taken during absorption.
Alfentanil	Alfentanil injection 500mcg/ml Sublingual spray 5mg/5ml 1 metered dose =140mcg	250-500mcg SL in opioid naive titrated to max 1680mcg/dose	Unlicensed, special order on named patient basis. Acts within 10mins. Smaller volume than fentanyl. May be better tolerated and allows administration of higher dose.

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VOMITING

- Consider reversible causes of nausea & vomiting including infection, constipation, gastritis and/or reflux, electrolyte imbalance, drugs, pain and/or anxiety.
- Antipsychotic medication:** 30% overall increase in mortality with use in patients with dementia. Greater sensitivity in dementia to extrapyramidal side effects and QT prolongation. Use may be reasonable in end of life situation.

MEDICATION	FORM	DOSE	INDICATIONS/DISADVANTAGES
Prochlorperazine	Buccal tablets Buccastem 3mg	1-2 tabs max bd between upper lip and gum	Caution: antipsychotic (see above) Dry mouth leading to potentially poor absorption.
Prochlorperazine	Injection 12.5mg /ml	Dose 12.5mg deep IM	Caution: antipsychotic (see above) Sedative.
Domperidone	Suppositories 30mg	Dose 30-60mg PR max qds	PR administration in patients with dementia may be misinterpreted as assault causing distress/resistance No extrapyramidal side effects
Metoclopramide	Injection 5mg/ml. 2ml ampoule	Dose 10-20mg SC max qds (30mg starting dose in CSCI)	For gastric stasis as cause of nausea/vomiting Problems with large volume in CSCI at higher doses. Contraindicated if patient has colic/organic bowel obstruction/parkinsonism Can cause acute dystonic reactions including oculogyric crisis
Cyclizine lactate	bolus injection IM (SC route is more painful than IM.) 50mg/ml ampoule CSCI	Dose 25-50mg IM max tds. 100-150mg over 24hrs via syringe driver	In syringe driver, cyclizine is incompatible with sodium chloride, poorly miscible with oxycodone and can only be mixed with diamorphine if added to 8-10mls water in 30ml syringe BEFORE adding diamorphine. Can cause injection site reactions – either reduce dose, increase vol. of diluent or change anti-emetic. Can be constipating. Should not be used in combination with metoclopramide.
Haloperidol	bolus injection CSCI 5mg/ml ampoule.	Dose 1-1.5mg SC bolus dose. 1.5-3mg dose via syringe driver/24hrs	Caution: antipsychotic (see above) 24hour length of action. Once daily bolus dose will suffice unless already using CSCI.
Levomepromazine	bolus injection CSCI 25mg/ml amp	6.25mg SC stat Starting dose 6.25-12.5mg via syringe driver over 24hrs .	Caution: antipsychotic (see above) Long half life so can be given as once daily injection or add to CSCI. Broad spectrum anti-emetic. Can cause drowsiness
Scopoderm TTS	TD patches	Hyoscine hydrobromide 1mg over 72hrs	Anti-emetic, antisecretory and antispasmodic properties. Central action so can cause drowsiness or agitation
Olanzapine	2.5mg orodispersible tablet	1.25-2.5mg stat dose dissolves on tongue or in thickened fluid	Caution: antipsychotic (see above) Additional 3-4x CVA risk with atypical antipsychotic in dementia. May be considered at end of life.

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FEVER

Consider appropriateness of investigating and treating the cause of fever.

MEDICATION	FORM	DOSE	INDICATIONS/DISADVANTAGES
Paracetamol	Suppositories 500mg	max 4g per 24hours	PR administration in patients with dementia may be misinterpreted as assault causing distress and/or resistance
Diclofenac	Suppositories 25, 50, 100mg	max 150mg per 24hours in divided doses	PR administration in patients with dementia may be misinterpreted as assault causing distress and/or resistance

EXCESS SECRETIONS

- The following anticholinergic drugs will also ease abdominal colic and bladder spasms.
- All carry a risk of precipitating narrow angle glaucoma in older people.
- They should not be used with metoclopramide as the combination counteracts its prokinetic effect.

MEDICATION	FORM	DOSE	INDICATIONS/DISADVANTAGES
Hyoscine butylbromide	bolus injection	20mg SC	Does not cross blood brain barrier and therefore has no central depressant/stimulant activity.
	CSCI	Starting dose 40-60mg over 24hours via syringe driver	
	20mg/ml ampoule		
Hyoscine hydrobromide	bolus injection	400-600mcg SC every 4-8 hrs	Sedative but occasionally causes paradoxical agitation.
	CSCI	1200mcg starting dose over 24hrs via syringe driver	
	400 mcg/ml ampoule		
ScopodermTTS	TD patches	Hyoscine hydrobromide 1mg over 72hrs	Central action so can cause drowsiness or agitation
Glycopyrronium	bolus injection	200mcg SC	Longer onset of action and longer duration of action than hyoscine Not sedative or anti-emetic
	CSCI 200mcg/ml, (1 & 3ml ampoules)	600-1200mcg over 24hrs via syringe driver.	
Atropine	1% ophthalmic solution	4 drops sublingually 4hrly prn	Drop size and dose will vary depending on applicator and technique.

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CONVULSIONS

- Position patient to avoid injury and maximise blood pressure in the recovery position
- Ensure airway is clear
- Check for hypoglycaemia if treated diabetic.

If convulsion does not resolve spontaneously after 10minutes:

MEDICATION	FORM	DOSE	INDICATIONS/DISADVANTAGES
Midazolam	Buccal liquid 10mg/ml Injection 1mg/ml, (2 & 5ml ampoules) 2mg/ml, (5ml amp) 5mg/ml, (2 & 10ml ampoules)	Dose 5-10mg Dose 5-10mg Break ampoule and place dose sublingually. Repeat once if still fitting after 15mins. Alternatively 5-10mg SC dose	For emergency treatment of convulsions Unlicensed for SL use Risk of respiratory depression (reversible with flumazenil) Caution re dose calculation if higher strength ampoules used
Lorazepam	IV injection 4mg/ml ampoule	4mg stat IV at rate of 2mg/minute Repeated after 10minutes if seizure persists/ recurs	Risk of respiratory depression Need facilities for resuscitation when given IV May be difficult to get adequate venous access
Diazepam	Rectal liquid 2.5mg, 5mg and 10mg dose tubes	250mcg per kg. Max dose 12.5 mg for 50kg pt (start with 5mg dose) max dose 15mg for 60+kg pt. Repeated after 15mins if still fitting.	Risk of respiratory depression

Midazolam	CSCI	Dose 20-30mg over 24hrs via syringe driver as starting dose.	Use for patients previously receiving oral antiepileptic medication and at risk of seizures
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RESTLESSNESS and AGITATION

- Consider potentially reversible causes of restlessness and acute agitation including infections, urinary retention, constipation, pain, electrolyte imbalance, hypoglycaemia, hypoxia, drugs (anticholinergics, opioids, benzodiazepines, antipsychotics), and drug withdrawal (including alcohol & nicotine). Investigate and treat if the benefits of those actions outweigh the burdens for the patient.
- Assess for anxiety, fear, emotional and spiritual distress and for behavioural and psychological symptoms of dementia.
- If the patient is nearing the end of life, consider the possibility of terminal agitation and restlessness.
- Identify appropriate therapeutic goals and necessary symptom relief. Initial non-pharmacological approaches may be successful.
- If medication is necessary, use the lowest dose to ease symptoms and review after 24 hours or sooner.

Medication	Form	Dose	Indications/Disadvantages
Lorazepam	1mg scored tablet Melts in mouth or will dissolve in few drops warm water; draw up in syringe and administer buccally. Bolus injection 4mg/ml ampoule	0.5mg SL- Rpt after 2hrs prn 0.5-1mg IM, dilute with equal volume of water or normal saline.	If acute anxiety, fear, anguish are predominant symptoms. May cause paradoxical agitation Risk of respiratory depression (reversible with flumazenil)
Midazolam	bolus injection 1mg/ml, (2 & 5ml ampoules) CSCI 2mg/ml, (5ml amp) 5mg/ml, (2 & 10ml ampoules)	2.5mg SC as starting dose. Repeated 2-4hrly prn 5-10mg over 24hrs via syringe driver as starting dose	As for lorazepam above. Caution re dose calculation if higher strength ampoules used
Haloperidol	bolus injection 5mg/ml ampoule CSCI	Dose 1-2mg SC or IM 2.5mg starting dose via syringe driver over 24hrs	Caution: antipsychotic (see top page 15) Use may be reasonable in end of life situation. High risk of side effects: extrapyramidal and QT prolongation. 24hour length of action
Levo-mepromazine	Bolus injection 25mg/ml CSCI	Dose 6.25-12.5mg SC 12.5-25mg as starting dose in syringe driver	Caution: antipsychotic (see top page 15) May be useful if agitation & paranoia are predominant symptoms. More sedating than haloperidol.
Olanzapine	2.5mg, 5mg orodispersible tablet	2.5mg stat dose dissolves on tongue or in thickened fluid	Caution: antipsychotic (see top page 15) Additional 3-4x CVA risk with atypical antipsychotic in dementia. May be considered at end of life.

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