



Basic End of Life Drugs for Qualified Nurses

(Please note that this booklet is intended as a training resource and therefore the information contained within it should not replace the medical advice of a Doctor. Nurses are also reminded to seek Specialist Palliative Care advice where indicated by using the contact numbers available on page 9)

This booklet contains;

- Simple mathematical conversions
- An explanation of the WHO analgesic ladder
- Explanation of some of the most common end of life symptoms
- An explanation of Anticipatory Prescribing
- End of Life Drug explanations and calculations
- Hints and tips for end of life drugs

Here are some metric units of weight you will use in your practice:

Name	Abbreviation	Notes
Kilogram	kg	Approximately the weight of a litre of water
Gram	G	One thousand grams to a kilogram
Milligram	mg	One thousand milligrams to a gram
Microgram	mcg	One million mcg to a gram

When converting Kilograms in to grams multiply by 1000

Convert 5 kilograms into grams.

1000 grams in a kilogram

$$5 \times 1000 = 5000 \text{ grams}$$

$$5\text{kg} = 5000 \text{ grams}$$

When converting grams in to kilograms divide by 1000

Convert 3000 grams in to kilograms

1000 grams in a kilogram

$$3000 \text{ divided by } 1000 = 3$$

$$3000 \text{ grams} = 3\text{kilograms}$$

CONVERTING LIQUIDS

Name	Abbreviation	Notes
Litre	L	1 litre = 1000 millilitres
Millilitre	ml	

Convert 3 litres in to millilitres

$$3 \times 1000 = 3000$$

$$3 \text{ litres} = 3000 \text{ millilitres}$$

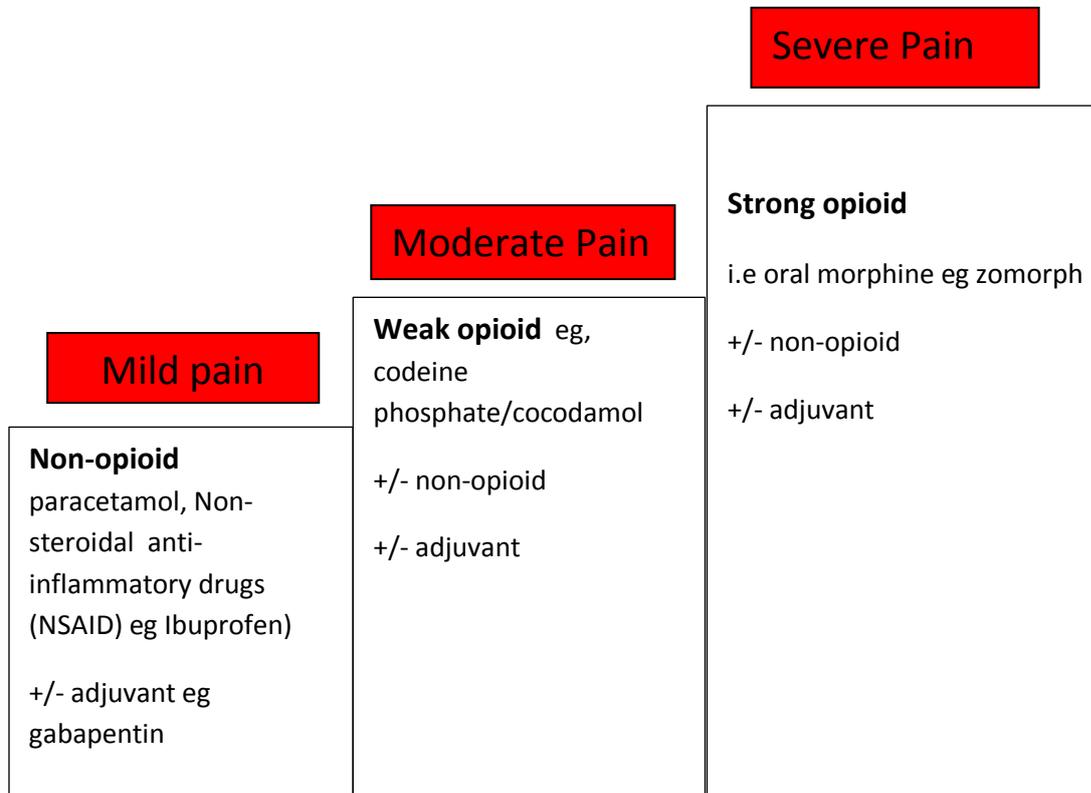
Convert 500 millilitres in to litres

$$500 / 1000 = 0.5$$

$$500 \text{ millilitres} = 0.5\text{litres}$$

Try not to use abbreviations and if the prescription is unclear ALWAYS check with the doctor.

WHO Analgesic ladder



The **Analgesic Ladder** was introduced in 1986 by the World Health Organization in order to support cancer patients in countries which were resource poor. Since then the approach has been extended to the management of acute and chronic non- malignant pain.

Its 5 guiding principles are;

1. **By mouth** – oral forms of analgesic are preferred wherever possible.
2. **By the clock** – analgesics should be given at regular intervals rather than on demand.
3. **By the ladder** – the principles of the ladder should be adhered to.
4. **For the individual** – there is no standardized dosage and therapy and should be based around the level of the patient’s reported pain.
5. **Attention to detail** – refers to the close monitoring of the patient’s pain (to include other social/emotional factors which may influence pain).

It is a 3 step approach that moves from treatment of mild to moderate and then to severe pain. As long as there are no contra indications, providing paracetamol every step of the way is recommended. Research has shown that it enhances the effects of the opioids which will often lead to smaller doses being required, and therefore less side effects.

NB most opioids will cause constipation. It is good practice to prescribe a laxative/stimulant alongside the opioid. (Beware of residents who may have a bowel cancer or other abdominal issues).

Non-steroidal analgesics are **not recommended** in patients with a history of chronic renal failure (many care home residents).

Adjuvant Analgesia

A drug or other substance that serves a supplemental purpose in therapy. For example, amitriptyline was originally manufactured as an anti-depressant but is also used for pain which is neuropathic in origin.

Commonly occurring end of life symptoms and their drug management

SYMPTOM	MEDICATION
Pain	Diamorphine (oral or subcutaneous) Oxycodone (oral or subcutaneous)
Breathlessness	Morphine (oral) Diamorphine (subcutaneous)
Nausea/Vomiting	Cyclizine (oral or subcutaneous) Haloperidol (oral or subcutaneous) Levomepromazine (oral or subcutaneous)
Agitation/Restlessness	Lorazepam (sub lingual) Midazolam (subcutaneous)
Secretions	Glycopyrronium (subcutaneous) Hyoscine butylbromide (subcutaneous)



Some of the most commonly presenting EOL symptoms include pain, agitation/restlessness, breathlessness, nausea and vomiting and noisy chest secretions.

Some residents may not get any of these and others one or two or even all of them. As we know that these symptoms are common at end of life, it makes sense that we are ready for them.

Good practice encourages us to think about anticipatory prescribing in the last 2 weeks of life. It is **not** an exact science, but if we have the drugs in place we can act swiftly to alleviate discomfort as opposed to having to wait for a GP or out of hours Doctor to arrive. The drugs are relatively inexpensive and to have drugs ready for all 5 possible symptoms is cheaper than having to call a GP out of hours.

Anticipatory prescribing

It involves having medication ready to treat any rapid changes in a patient's symptoms. It is symptom control which does not require a patient to swallow medications. Terminology includes subcutaneous, butterfly, PRN (as required) and CSCI (continuous subcutaneous infusion). In this area anticipatory drugs are used from the 'blue booklet.'

Once the resident has commenced on the Blue Booklet drugs the MAR sheet **must** be discontinued.

Blue booklet drugs

Diamorphine is a **strong** opioid analgesic. It dissolves beautifully in water which enables large doses to be administered in small volumes. The dose depends on what the resident is already receiving and the size of the individual. 2.5mg-5mg is often sufficient to relieve pain in a resident who has never had an opioid before.

NB Residents who have a transdermal patch in situ will already be receiving a strong opioid. Look in the blue booklet to see how this converts to another drug. Ensure that the patch remains in place and is changed as prescribed, even if a syringe driver has commenced (the amount from the patch must always be calculated in the daily total of drugs delivered).

Cyclizine is a broad spectrum anti emetic. It must be diluted with water for injection and has the ability to irritate the site of entry, so always check for reactions. 50mg is the usual S/C dose and can be repeated 4-6 hourly. Usual maximum dose is 200mg and this includes the syringe driver delivery.

Haloperidol is an anti-emetic used widely in palliative care and addresses the chemical causes of vomiting. 1.5mg – 5mg 4-6 hourly. 15mg is the usual maximum dose in 24 hours and this includes the syringe driver delivery. In larger doses it can last up to 24 hours.

Levomepromazine is a broad spectrum anti emetic which covers most causes of vomiting. It has a strong sedative effect and can cause drowsiness. Dose range is 6.25mg to 25mg given 4-6 hourly (**always** start with the lowest dose). Usual maximum dose is 75mg in 24 hours and this includes the syringe driver delivery.

Glycopyronium dries up noisy respiratory secretions. It cannot dry up secretions that are already there, but it can prevent further ones developing. It is successful in 33-50% of patients. Dosage PRN is 200mcg S/C 3 hourly. Usual maximum dose in 24 hours is 1200mcg and this includes the syringe driver delivery.

Midazolam is a strong sedative and works to relieve agitation and terminal restlessness. It is a respiratory depressant and should be used cautiously and sensibly. PRN S/C dose is 2.5mg to 10mg 3 hourly. Usual maximum dose is 80mg in 24 hours and this includes the syringe driver delivery.



Blue Booklet

This contains the end of life drugs for the most commonly presenting symptoms. Take some time to study the blue booklet to see how it works.

The **front page** contains a 24 hour helpline at your local hospice which you are free to access 365 days a year. It also has instructions about how the booklet can be completed.

Pages 2-5 are for syringe driver, transdermal and oral medications. There is no direction of exact amounts because that will depend on what drugs the resident is already on.

Pages 6-15 contains the PRN (as required drugs). Diamorphine does not have a written range as once again it will depend on what the resident is already receiving (opioid naïve residents will require very small amounts to begin with). The other drugs have a range which must be adhered to. Unless otherwise instructed by a specialist nurse/doctor, it is best practice to start with the lower range of any dose.

Pages 16-21 contain the drug stock record. This can be particularly helpful in seeing how many vials of a certain medication you have left and helps to order more as required.

Pages 22-23 contains conversion charts. For example, you will be able to see how to convert oral morphine to subcutaneous morphine.

Page 24 gives very good guidance about which drug is appropriate for a particular symptom.

Hints and Tips with for End of life Drugs

Anticipatory Prescribing. Ensure the blue booklet is in place in the last couple of weeks of life, with the End of life drugs (EOL) prescribed. Once the blue booklet is commenced the **MAR sheet is no longer required.**

Commencement of morphine-based drugs; Commence regular, oral morphine with breakthrough doses prescribed. **Regularly review and assess.**

Breakthrough doses. These are always 1/6 of the total dose. For example, if someone is on Zomorph 15mg twice daily then their total for the day is 30mg. Breakthrough does of this would be 1/6 of 30mg which is 5mg.

Subcutaneous medication. Morphine – based drugs should be given subcutaneously at end of life if the patient is unable to swallow or absorb medications. They are less painful given this way rather than the intramuscular route.

Diamorphine is 3x stronger then oral morphine.

Increasing morphine based drugs. If the pain relief after 24 hours is still not effective, the total can be increased by 30%.

15mg Zomorph twice daily = 30mg.

3x5mg oral morphine for **breakthrough** = 15mg

30mg + 15 mg = 45mg (total for 24 hours)

30% or 1/3 of 45mg = 15mg

45mg total for 24hours + 15mg (30% increase) = 60mg



Breakthrough doses must increase in line with the daily total. Breakthrough for 60mg is $1/6 = 10\text{mg}$

Syringe drivers. These can be used very effectively at end of life if the patient is unable to swallow. Follow the guidelines in the blue booklet to see conversions of drugs. **Diamorphine, in effect is 3x stronger** when given in injection than oral morphine, so the driver dose will be $1/3$ of the oral dose.

Where to seek help

For more information/guidance speak with your **GP** or **District Nurse** or **Macmillan Nurse** (as appropriate).

Both of the local Hospices have a 24 hour helpline; **East Cheshire Hospice – 01625666999** and **St. Luke's Hospice - 01606551246**

For more information/guidance visit www.cheshire-epaige.nhs.uk