

The Syringe Driver

What is it?

- A small, portable, battery powered infusion device that is suitable for patient use in hospital, hospice, home and care home.
- Used to deliver a continuous subcutaneous infusion (CSCI) of drugs from a syringe e.g. analgesics, antiemetics, sedatives or anticholinergics.
- Delivers a single drug or combination of drugs, administered at a constant rate over a set period of time (usually 24 hours)

If in any doubt about the use of a syringe driver or its contents, contact the specialist palliative care team for advice.

When should a syringe driver be used?

When oral / PEG medications may not be adequately absorbed:

- Persistent nausea and vomiting
- Intestinal obstruction
- Pancreatic insufficiency

When the oral route is unavailable:

- Patient unable to swallow due to fatigue
- Dysphagia
- Sleepiness / coma
- Patient is burdened by volume of medication

What are the advantages of a syringe driver?

- Good symptom control through steady levels of plasma drug concentration
- Better control of nausea and vomiting which may enable patient to take oral medications
- Control of multiple symptoms with a combination of drugs in a single syringe driver
- Avoids repeated PRN injections
- Subcutaneous route
 - More comfortable than intramuscular route (especially for cachectic patients)
 - Less invasive than IV route
 - Avoids need for IV access
- Does not restrict mobility and independence
- Only needs setting up once a day

Are there any disadvantages?

- Syringe driver and tubing can be inconvenient e.g. when dressing
- Has to be carried around at all times; some patients find it heavy
- Needs a healthcare professional to replenish it each day (can restrict social activities)
- Subcutaneous site can get irritated and inflamed; this can be minimised by:
 - Changing site every 2-3 days
 - Consider 0.825mg (1ml) dexamethasone in tip if changing site is ineffective

Considerations when using a syringe driver

- There is a need to anticipate the patient's requirement over 24 hours
- There is no "boost" button, so additional injections may be needed to supplement the CSCI
- It should not be seen as the solution to all problems; symptoms still need to be assessed regularly and doses titrated accordingly

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The syringe driver “myth”

Some people think that the syringe driver is a last resort, or a sign of impending death. Some even believe that a syringe driver is set up to shorten life and bring about death. It is important to explain to patients that:

- The syringe driver is simply a means of delivering medicines by an alternative route
- Many people use a syringe driver for prolonged periods of time to manage their symptoms
- Medications used in a syringe driver are to treat symptoms and not to shorten life

Prescribing a syringe driver

- The drugs and doses should be clearly written on the pink community prescription form
- Controlled drugs (e.g. opioids, midazolam) should be written in words and numbers
- The diluent should be specified:
 - This is usually water for injection, but sometimes 0.9% saline (check with pharmacist or specialist palliative care team if unsure)

The “Prescribing in Palliative Care” section of the British National Formulary (BNF) provides some useful information about drug conversions and compatibility. If prescribing for a patient for the first time, consider seeking advice from specialist palliative care team re doses and compatibility.

Opioids and syringe drivers

- See conversion charts for appropriate conversion guidance from oral to subcutaneous route
 - [Calderdale and Huddersfield NHS trust conversion table](#)
- Most community prescribers may wish to seek specialist palliative care advice re dose
- If absorption of oral medication has potentially been reduced (e.g. through vomiting), consider a *conservative* (i.e. reduced) opioid conversion
- If renal function is reduced (eGFR less than 40), use oxycodone rather than diamorphine
- If eGFR is less than 15, subcutaneous alfentanil or transdermal fentanyl may be more appropriate – seek advice from specialist palliative care team

Over-opiation and syringe drivers

Signs of over-opiation may be subtle, but include:

- Drowsiness
- Muscle jerks
- Hallucinations
- Pinpoint pupils
- Respiratory depression (rate less than or equal to 8/min)
- Reduced oxygen saturation

If over-opiation is suspected:

- Stop syringe driver
- Remain with patient
- Seek advice **urgently** from specialist palliative care team (if the community team is not immediately available, contact Overgate Hospice for advice)
- 999 may need to be considered if it would be appropriate to manage the patient’s condition in the acute setting and the patient may require the use of naloxone

Setting up a syringe driver

This should be done by an appropriately trained nurse (usually a district/community nurse or specialist nurse).

For comprehensive practical guidance, see CHT intranet link: [Syringe driver information](#)

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