

Administration by subcutaneous infusion: Diluents and compatibilities summary

This guide summarises key principles for administering medicines by subcutaneous infusion, including common exceptions, problems, and incompatibilities.

Before preparing a syringe driver, confirm the correct diluent and check for incompatibilities when combining medicines, using up-to-date resources such as:

- [The Isle of Wight Palliative Care Symptom Control Guidelines 2024](#)
- [Scottish Palliative Care Guidelines: Syringe pump / driver guidelines | Right Decisions](#)
- [PallCare Matters](#)

Because incompatibilities may be dose dependent, always verify that the exact prescribed combination is compatible. Inspect all preparations for crystallisation, colour changes, precipitation, or cloudiness. A clear solution does not exclude incompatibility. Consider site reactions, unexpected worsening of symptoms (particularly where one drug has been used alone with good effect), frequent line occlusion alarms as potential signs for incompatibility.

Diluents

Sodium chloride 0.9% or water for injection may be used to make up the syringe volume. Sodium chloride 0.9% is closer to physiological tonicity and is less likely to cause site reactions. Water for injection is less likely to cause precipitation in less stable combinations. Most medicines are stable in either diluent, with the exceptions of:

Sodium chloride 0.9% only		
Chlorphenamine	Ketamine	Parecoxib
Clonidine	Ketorolac	Tranexamic acid
Esomeprazole	Lacosamide	
Furosemide	Metoprolol	
Water for injection only		
Cyclizine	Diamorphine above 40mg/ml	

Compatibilities

As soon as two or more medicines are mixed in a single syringe, the product becomes unlicensed. The advice on which combinations can be used together and which cannot is documented in the literature based on experience.

Commonly used medicines that are compatible:

- Opioid +/- Midazolam +/- Hyoscine butylbromide +/- Levomepromazine

Alkaline medicines are generally incompatible and should not usually be mixed in a syringe driver.

Alkaline. Keep separate from other drugs:	Commonly used medicines that are generally incompatible:
Dexamethasone	Opioids + Ketorolac
Esomeprazole	Morphine + Glycopyrronium
Furosemide	Cyclizine + (Clonidine or ondansetron or hyoscine butylbromide)
Parecoxib	Levetiracetam. Use caution in any combination
Tranexamic acid	Cyclizine and oxycodone may be incompatible
Valproate	Oxycodone 50mg/ml may have different compatibility to 10mg/ml

Where combinations are required and are not listed in the literature seek specialist advice and use individual pumps where possible.

If precipitation occurs or is suspected, stop the pump and review the combination used.

Where combinations are used that are unusual, incompatible, include 3 or more drugs, or where high doses or concentrations are used - report compatibility outcomes: [PallCare Matters](#)