# Department of Health and Human Services Palliative Care Clinical Network

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- discuss care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes the use of interpreter services where necessary;
- advise consumers of their choice and ensure informed consent is obtained;
- provide care within their scope of practice, meet all legislative requirements and maintain standards of professional conduct;
- apply standard precautions and additional precautions as necessary, when delivering care;
- document care in accordance with local and mandatory requirements.

Once printed the currency of this document is limited.

**April 2015**

Eastern Metropolitan Region
Palliative Care Consortium

**Eastern Metropolitan Region Palliative Care Consortium (Victoria)**

**Clinical Group**

# Syringe Driver Drug Compatibilities – Guide to Practice 2013

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**INSTRUCTIONS FOR USE**

These guidelines work best if used electronically. The Contents have hyperlinks to each section.
Printing: It is highly recommended these guidelines are printed in colour, to aid ease of use.

# Contents

Please note: 2013 Version 2- has 1 drug compatibility caution applied on p 13. This differs from the July 2013 version.

## DISCLAIMER

**The information in this document is intended as a guide only. It is the responsibility of the user to ensure information is used correctly. This guide reflects Victorian palliative care practice and published evidence at the time of review.**

**All drug compatibility combinations derived from this guide should be checked and prescribed by a medical doctor or nurse practitioner with appropriate experience before administering. If you require further information regarding drug combinations and compatibility data, contact a specialist hospital-based pharmacy drug information service.**

**Caution should be used when combining drugs in syringe drivers; mixtures should be closely monitored for discolouration, precipitation and crystallisation.**

**Drug doses should be modified in response to the patient/client's clinical situation and status, including previous exposure to opioids and concurrent medications. All patients should be monitored closely when commencing and/or switching opioid medications.**

**In accordance with quality practice, this guide should be submitted for organisational approval prior to use. When setting up and using syringe drivers, follow your organisation's policy and procedures.**

## KEY

**Instructions for reading the list of drugs**

All drugs are listed in alphabetical order. When searching for drug combinations, search by the drug which occurs first alphabetically. Drug combinations *are not* repeated in reverse order

Example: Haloperidol
Haloperidol, Hydromorphone
Haloperidol, Hydromorphone, Metoclopramide

| Symbol | Explanation |
|---|---|
|  | Compatible, observational data from clinical setting |
|  A,B,C | Compatible, read note for explanation |
|   | Conflicting information regarding compatibility – proceed with caution |
|  | Incompatible |
| NaCl 0.9% | Diluent = Sodium Chloride 0.9% (NaCl 0.9%) |
| WFI | Diluent = Water For Injection (WFI) |
| NaCl 0.9% / WFI | Diluent = Sodium Chloride 0.9% (NaCl 0.9%) or Water for Injection (WFI) |

| | |
|---|---|
| **NOTE A** | Chemically compatible in tests |
| **NOTE B** | Physically compatible in tests |
| **NOTE C** | Potential for site reaction – see 'Infusion Site Problems' |

## Compatibility

Information gathered from the clinical setting is the observation for any physical changes, as well as clinical assessment. This is documented as *compatible, observational data from clinical setting* and is marked with a green tick

**Chemical compatibility (note A)**

Chemical compatibility data is obtained by laboratory analysis the drug combination in the range of combinations usually used, in the usual diluent and over a range of temperatures.

**Physical compatibility (note B)**

Physical compatibility data can also be obtained by laboratory analysis. The lack of physical change such as discoloration, clouding or crystallization is tested microscopically.

Compatibility can be dependent on the concentration of each drug in the total final volume being infused, rather than the actual dose.
Numerous factors effect stability and compatibility including drug salt, strength, diluents, order of drawing up, temperature and infusion periods. Seek specialist palliative care or pharmacist advice when needed.
Monitoring of the combined drugs in the syringe driver throughout the infusion period is advised.

When combining medications for syringe driver use, be aware compatibility data is available for only a few drug combinations**.** As a consequence, some combinations are not listed in this guide.

**It is recommended that the number of medications in one syringe driver be limited to three**.
If several medications are required, consider using more than one syringe driver where this is practical. The more medications that are mixed in one syringe, the higher the potential for interaction, particularly where pH differs.

If the combination is not listed in this practice guideline, consult

1. Dickman A, Schneider J. The Syringe Driver Continuous subcutaneous infusions in palliative care. 3rd ed. Oxford: Oxford University Press; 2011 (1)
2. The syringe driver database on the palliative care website www.palliativedrugs.com (2)

For further information see Guidelines for Subcutaneous Infusion Device Management in Palliative Care – second edition 2010 available at www.health.qld.gov.au/cpcre (3)

## Infusion site problems (note C)

A plastic (Teflon® or Vialon®) cannula should be used rather than a metal butterfly needle to reduce site inflammation. A skin reaction at the infusion site is most commonly found with **cyclizine, ketamine, levomepromazine and methadone**. Excluding mixtures containing cyclizine, sodium chloride 0.9% can be used as the diluent in an attempt to reduce site reactions with irritant infusions. Sites may last up to a week, depending on the drugs used. The site should be changed if painful or inflamed. Routine rotation to a different subcutaneous site every 72 hours reduces the frequency of site problems. If frequent resiting is necessary, e.g. every 24 to 48 hours, consider the following strategies:

- Use a larger syringe to enable a more dilute mixture to be used, thereby decreasing the final drug concentrations
- Change to a 12 hourly regimen, thereby permitting further dilution of the drugs
- Change an irritant drug to a less irritant alternative
- Inject dexamethasone 1mg directly into the infusion site, via the cannula to be used. Flush with NaCl 0.9% then connect the syringe driver and commence.(1)

**Chlorpromazine, diazepam and prochlorperazine**
These drugs are not recommended to be given by subcutaneous infusion due to severe local reactions. (3)

**Phenobarbitone**
Phenobarbitone has an alkaline pH and can cause tissue necrosis when administered as subcutaneous bolus injection. In practice, phenobarbitone can be initiated with a bolus intramuscular or intravenous injection, then via subcutaneous infusion with NaCl 0.9% or WFI as diluent. It should be given via a separate syringe driver. Seek specialist advice. (1)

## Diluent information

Sodium Chloride 0.9% (NaCl 0.9%) and Water for Injection (WFI) are suitable for subcutaneous infusions. Diluting syringe contents as much as possible is recommended to reduce site irritation.

NaCl 0.9% is recommended as the diluent of choice when drugs are compatible with more than one solution. It is closest to physiological tonicity, therefore less likely to cause irritation. The main exception to this is **cyclizine** which should always be diluted in **WFI**.

Glucose 5% was included in the 2008 document. It is not used in the Victorian setting and is no longer included in this guide

# Syringe Driver Drug Compatibilities – Guide to Practice 2013

| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| ***Atropine*** | ✓ | NaCl 0.9% | Atropine may be administered via continuous subcutaneous infusion, but is not commonly used in Australia. Information on compatibility with other drugs is limited therefore not recommended | 5 |
| ***Clonazepam*** | ✓ | NaCl 0.9% / WFI | There is a significant loss when infused through PVC tubing which can be addressed by using non PVC tubing or titrating the dose to desired effect | 1 |
| Clonazepam, Glycopyrrolate, Oxycodone | ✓ | NaCl 0.9% | | 2 |
| Clonazepam, Haloperidol, Methadone | ✓ C | NaCl 0.9% | | 1 |
| Clonazepam, Haloperidol, Morphine Sulfate | ✓ | NaCl 0.9% / WFI | | 2 |
| Clonazepam, Haloperidol, Morphine Tartrate | ✓ | NaCl 0.9% | | 1 |
| Clonazepam, Haloperidol, Oxycodone | ✓ B | NaCl 0.9% / WFI | | 1 |
| Clonazepam, Hydromorphone | ✓ | NaCl 0.9% | | 2 |
| Clonazepam, Hyoscine Butylbromide | ✓ | NaCl 0.9% / WFI | | 2 |
| Clonazepam, Hyoscine Butylbromide, Morphine Sulfate | ✓ | NaCl 0.9% | | 1 |
| Clonazepam, Hyoscine Butylbromide, Oxycodone | ✓ B | NaCl 0.9% / WFI | | 1 |
| Clonazepam, Hyoscine Hydrobromide, Oxycodone | ✓ B | NaCl 0.9% / WFI | | 1 |
| Clonazepam, Ketamine, Morphine Tartrate | ✓ C | NaCl 0.9% | | 1 |
| Clonazepam, Ketamine, Oxycodone | ✓ C | NaCl 0.9% | | 2 |
| Clonazepam, Levomepromazine, Morphine Sulfate | ✓ C | NaCl 0.9% / WFI | | 1 |
| Clonazepam, Levomepromazine, Oxycodone | ✓ C | NaCl 0.9% / WFI | | 1 |

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| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Clonazepam, Methadone | ✓ C | NaCl 0.9% | | 1 |
| Clonazepam, Metoclopramide, Oxycodone | ✓ | NaCl 0.9% | | 1 |
| Clonazepam, Morphine Sulfate | ✓ | NaCl 0.9% / WFI | | 1,2 |
| Clonazepam, Octreotide, Oxycodone | ✓ | NaCl 0.9% | | 1 |
| Clonazepam, Oxycodone | ✓ B | NaCl 0.9% / WFI | | 1 |
| ***Cyclizine*** | ✓ C | WFI | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) or if the pH is greater than 6.8 | 1 |
| Cyclizine, Glycopyrrolate, Haloperidol | ✓ C | WFI | | 2 |
| Cyclizine, Glycopyrrolate, Oxycodone | ✓ C | WFI | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) or if the pH is greater than 6.8 | 1 |
| Cyclizine, Haloperidol | ✓ C | WFI | | 1 |
| Cyclizine, Haloperidol, Hyoscine Butylbromide | ✗ | | | 2 |
| Cyclizine, Haloperidol, Metoclopramide | CAUTION C | WFI | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) or if the pH is greater than 6.8 | 2 |
| Cyclizine, Haloperidol, Midazolam | ✓ C | WFI | | 1 |
| Cyclizine, Haloperidol, Morphine Sulfate | ✓ A,B,C | WFI | | 1 |
| Cyclizine, Haloperidol, Octreotide | ✓ C | WFI | | 2 |
| Cyclizine, Haloperidol, Oxycodone | ✓ A,B,C | WFI | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) or if the pH is greater than 6.8 | 1 |
| Cyclizine, Hydromorphone | CAUTION C | WFI | | 2 |

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| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Cyclizine, Hydromorphone, Octreotide | C | WFI | | 1 |
| Cyclizine, Hyoscine Butylbromide | C | WFI | | 2 |
| Cyclizine, Hyoscine Butylbromide, Morphine Sulfate | C | WFI | | 1 |
| Cyclizine, Hyoscine Butylbromide, Oxycodone | | | | 2 |
| Cyclizine, Hyoscine Hydrobromide, Midazolam | C | WFI | | 2 |
| Cyclizine, Hyoscine Hydrobromide, Morphine Sulfate | C | WFI | | 2 |
| Cyclizine, Hyoscine Hydrobromide, Morphine Tartrate | C | WFI | | 1 |
| Cyclizine, Levomepromazine | C | WFI | Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects | 1,2 |
| Cyclizine, Levomepromazine, Morphine Sulfate | C | WFI | Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects | 1 |
| Cyclizine, Levomepromazine, Octreotide | C | WFI | Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects | 1,2 |
| Cyclizine, Levomepromazine, Oxycodone | C | WFI | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone)<br>Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects | 1 |
| Cyclizine, Methadone | C | WFI | | 2 |
| Cyclizine, Metoclopramide | C | WFI | The prokinetic effect of metoclopramide may be inhibited by cyclizine. | 1 |

| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| | | | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) | |
| Cyclizine, Metoclopramide, Octreotide | ✓ C | WFI | The prokinetic effect of metoclopramide may be inhibited by cyclizine.<br>Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) | 1 |
| Cyclizine, Midazolam | ✓ C | WFI | | 1 |
| Cyclizine, Midazolam, Morphine Sulfate | ✓ A,B,C | WFI | | 1 |
| Cyclizine, Midazolam, Oxycodone | ✓ A,B,C | WFI | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) | 1 |
| Cyclizine, Morphine Sulfate | ✓ C | WFI | | 1 |
| Cyclizine, Morphine Sulfate, Octreotide | ✓ C | WFI | | 2 |
| Cyclizine, Morphine Tartrate | ✓ C | WFI | | 2 |
| Cyclizine, Ondansetron, Oxycodone | ✗ | | | 2 |
| Cyclizine, Oxycodone | ✓ A,B,C | WFI | Cyclizine may precipitate as the concentration of chloride ions increases(e.g. with metoclopramide or oxycodone) | 1,6 |
| ***Fentanyl*** | ✓ | NaCl 0.9% / WFI | The volume of fentanyl injection may restrict its use in the syringe driver. A separate or 12 hourly syringe driver may be required. | 1 |
| Fentanyl, Haloperidol, Midazolam | ✓ | NaCl 0.9% | | 1 |
| Fentanyl, Hyoscine Butylbromide, Midazolam | ✓ A,B | NaCl 0.9% | | 1 |
| Fentanyl, Ketamine | ✓ B,C | NaCl 0.9% | | 5,7 |
| Fentanyl, Metoclopramide | ✓ | WFI | | 2 |

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| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Fentanyl, Metoclopramide, Midazolam | ✓ A,B | NaCl 0.9% | | 1 |
| Fentanyl, Midazolam | ✓ A,B | NaCl 0.9% | | 1 |
| Fentanyl, Ondansetron | ✓ A,B | NaCl 0.9% | | 1 |
| ***Glycopyrrolate*** | ✓ | NaCl 0.9% WFI | | 1 |
| Glycopyrrolate, Haloperidol, Ondansetron | ✓ | NaCl 0.9% | | 1 |
| Glycopyrrolate, Ketamine Oxycodone | ✓ C | NaCl 0.9% | | 2 |
| Glycopyrrolate, Levomepromazine, Midazolam | ✓ C | NaCl 0.9% | | 1 |
| Glycopyrrolate, Levomepromazine, Morphine Sulfate | ✓ C | NaCl 0.9% | | 1 |
| Glycopyrrolate, Levomepromazine, Octreotide | ✓ C | NaCl 0.9% WFI | | 1 |
| Glycopyrrolate, Levomepromazine, Oxycodone | ✓ C | NaCl 0.9% WFI | | 1 |
| Glycopyrrolate, Methadone, Midazolam | ✓ C | NaCl 0.9% | | 1 |
| Glycopyrrolate, Metoclopramide, Morphine Sulfate | ✓ | NaCl 0.9% | The prokinetic effect of metoclopramide may be inhibited by glycopyrrolate. | 1 |
| Glycopyrrolate, Metoclopramide, Oxycodone | ✓ | NaCl 0.9% WFI | The prokinetic effect of metoclopramide may be inhibited by glycopyrrolate | 2 |
| Glycopyrrolate, Midazolam | ✓ | NaCl 0.9% | | 2 |
| Glycopyrrolate, Midazolam, Morphine Sulfate | ✓ | NaCl 0.9% WFI | | 1 |
| Glycopyrrolate, Midazolam, Oxycodone | ✓ | NaCl 0.9% WFI | | 1 |
| Glycopyrrolate, Ondansetron | ✓ A,B | NaCl 0.9% | | 1 |

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| DRUG | COMPATIBILITY | DILUENT | | COMMENT | REFERENCE |
|---|---|---|---|---|---|
| Glycopyrrolate, Oxycodone | ✓ | NaCl 0.9% | WFI | | 6 |
| ***Haloperidol*** | ✓ | NaCl 0.9% | WFI | At concentrations greater than 1mg/mL, haloperidol may precipitate in NaCl 0.9%<br>Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, eg haloperidol, metoclopramide and levomepromazine. | 1 |
| Haloperidol, Hydromorphone | ✓ | NaCl 0.9% | WFI | | 1 |
| Haloperidol, Hydromorphone, Ketamine | ✓ C | NaCl 0.9% | WFI | | 2 |
| Haloperidol, Hydromorphone, Metoclopramide | ✓ | NaCl 0.9% | | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 2 |
| Haloperidol, Hydromorphone, Midazolam | ✓ | NaCl 0.9% | WFI | | 2 |
| Haloperidol, Hydromorphone, Ranitidine | ✓ | NaCl 0.9% | | | 2 |
| Haloperidol, Hyoscine Butylbromide | ✓ B | NaCl 0.9% | | | 1 |
| Haloperidol, Hyoscine Butylbromide Oxycodone | ✓ B | NaCl 0.9% | WFI | | 1 |
| Haloperidol, Hyoscine Butylbromide, Metoclopramide | ✓ | NaCl 0.9% | | The prokinetic effect of metoclopramide may be inhibited by hyoscine butylbromide<br>Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity eg haloperidol, metoclopramide and levomepromazine | 2 |
| Haloperidol, Hyoscine Butylbromide, Midazolam | ✓ B | NaCl 0.9% | | | 1 |
| Haloperidol, Hyoscine Butylbromide, Morphine Sulfate | ✓ | NaCl 0.9% | WFI | | 1,2 |
| Haloperidol, Hyoscine Butylbromide, Ranitidine | ✓ | NaCl 0.9% | | | 2 |
| Haloperidol, Hyoscine Hydrobromide | CAUTION A,B | NaCl 0.9% | | | 8 |
| Haloperidol, Hyoscine Hydrobromide, Morphine Sulfate | ✓ | NaCl 0.9% | | | 1 |

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| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Haloperidol, Hyoscine Hydrobromide, Octreotide | ✓ | NaCl 0.9% | | 2 |
| Haloperidol, Hyoscine Hydrobromide, Oxycodone | ✓ B | NaCl 0.9% / WFI | | 1 |
| Haloperidol, Ketamine | ✓ C | NaCl 0.9% | | 1 |
| Haloperidol, Ketamine, Midazolam | ✓ C | NaCl 0.9% / WFI | | 1,2 |
| Haloperidol, Ketamine, Morphine Sulfate | ✓ C | NaCl 0.9% | | 1 |
| Haloperidol, Ketamine, Oxycodone | ✓ B, C | NaCl 0.9% / WFI | | 1 |
| Haloperidol, Levomepromazine, Morphine Sulfate | ✓ C | NaCl 0.9% / WFI | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity e.g. haloperidol, metoclopramide and levomepromazine | 2 |
| Haloperidol, Metoclopramide | ✓ B | NaCl 0.9% | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 1 |
| Haloperidol, Metoclopramide, Midazolam | ✓ B | NaCl 0.9% | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 1 |
| Haloperidol, Metoclopramide, Morphine Sulfate | ✓ | NaCl 0.9% / WFI | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 1,2 |
| Haloperidol, Metoclopramide, Morphine Tartrate | ✓ | NaCl 0.9% | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 2 |
| Haloperidol, Metoclopramide, Octreotide | ✓ | NaCl 0.9% | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 2 |
| Haloperidol, Metoclopramide, Oxycodone | ✓ | WFI | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 2 |
| Haloperidol, Metoclopramide, Ranitidine | ✓ | NaCl 0.9% / WFI | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 2 |

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| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Haloperidol, Midazolam | ✓ A,B | NaCl 0.9% | | 8 |
| Haloperidol, Midazolam, Morphine Sulfate | ✓ A,B | NaCl 0.9% | | 1 |
| Haloperidol, Midazolam, Octreotide | ✓ | NaCl 0.9% | | 1 |
| Haloperidol, Midazolam, Oxycodone | ✓ B | NaCl 0.9% WFI | | 1 |
| Haloperidol, Morphine Sulfate | ✓ | NaCl 0.9% WFI | | 1,2 |
| Haloperidol, Morphine Sulfate, Octreotide | ✓ | NaCl 0.9% WFI | | 1 |
| Haloperidol, Morphine Tartrate | ✓ | NaCl 0.9% | | 1 |
| Haloperidol, Octreotide | ✓ | NaCl 0.9% | | 2 |
| Haloperidol, Octreotide, Oxycodone | ✓ | NaCl 0.9% WFI | | 2 |
| Haloperidol, Ondansetron | ✓ | NaCl 0.9% | | 2 |
| Haloperidol, Oxycodone | ✓ A,B | NaCl 0.9% WFI | | 1,6 |
| ***Hydromorphone*** | ✓ | NaCl 0.9% WFI | | 1 |
| Hydromorphone, Hyoscine Butylbromide | ✓ | NaCl 0.9% | | 2 |
| Hydromorphone, Hyoscine Butylbromide, Levomepromazine | ✓ C | NaCl 0.9% | | 2 |
| Hydromorphone, Hyoscine Butylbromide, Midazolam | ✓ | NaCl 0.9% | | 2 |
| Hydromorphone, Ketamine | ✓ A,B,C | NaCl 0.9% | | 1 |
| Hydromorphone, Ketamine, Levomepromazine | ✓ C | NaCl 0.9% | | 2 |

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| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Hydromorphone, Ketamine, Midazolam | C | NaCl 0.9% | | 1 |
| Hydromorphone, Levomepromazine | C | NaCl 0.9% WFI | | 2 |
| Hydromorphone, Levomepromazine, Metoclopramide | C | NaCl 0.9% | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity eg haloperidol, metoclopramide and levomepromazine | 2 |
| Hydromorphone, Levomepromazine, Midazolam | C | NaCl 0.9% WFI | | 2 |
| Hydromorphone, Levomepromazine, Ranitidine | CAUTION C | NaCl 0.9% | Combination appears to be physically incompatible with increasing levomepromazine concentration. Consider using 2 syringe drivers | 1,2 |
| Hydromorphone, Metoclopramide | | NaCl 0.9% WFI | | 2 |
| Hydromorphone, Metoclopramide, Midazolam | | NaCl 0.9% WFI | | 1,2 |
| Hydromorphone, Metoclopramide, Octreotide | | NaCl 0.9% | | 2 |
| Hydromorphone, Metoclopramide, Ondansetron | | NaCl 0.9% | | 2 |
| Hydromorphone, Midazolam | A,B | NaCl 0.9% | | 1 |
| Hydromorphone, Octreotide, Ondansetron | | NaCl 0.9% | | 2 |
| Hydromorphone, Ondansetron | A,B | NaCl 0.9% | | 1 |
| ***Hyoscine Butylbromide (Hyoscine BBr)*** | | NaCl 0.9% WFI | | 1 |
| Hyoscine BBr, Ketamine, Levomepromazine | C | NaCl 0.9% | | 2 |
| Hyoscine BBr, Levomepromazine, Morphine Sulfate | A,B,C | NaCl 0.9% | | 1 |
| Hyoscine BBr, Levomepromazine, Octreotide | C | NaCl 0.9% WFI | | 2 |

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| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Hyoscine BBr, Levomepromazine, Ondansetron | ✓ C | NaCl 0.9% | | 2 |
| Hyoscine BBr, Levomepromazine, Oxycodone | ✓ A,B,C | NaCl 0.9% | | 1 |
| Hyoscine BBr, Methadone, Ranitidine | ✓ C | NaCl 0.9% | | 2 |
| Hyoscine BBr, Metoclopramide | ✓ B | WFI | The prokinetic effect of metoclopramide may be inhibited by hyoscine butylbromide | 2 |
| Hyoscine BBr, Metoclopramide, Midazolam | ✓ B | NaCl 0.9% | The prokinetic effect of metoclopramide may be inhibited by hyoscine butylbromide | 1 |
| Hyoscine BBr, Midazolam | ✓ B | NaCl 0.9% | | 1 |
| Hyoscine BBr, Midazolam, Morphine Sulfate | ✓ | NaCl 0.9% / WFI | | 1,2 |
| Hyoscine BBr, Midazolam, Oxycodone | ✓ | NaCl 0.9% / WFI | | 1,2 |
| Hyoscine BBr, Morphine Sulfate, Octreotide | ✓ | NaCl 0.9% / WFI | | 1,2 |
| Hyoscine BBr, Morphine Sulfate, Ondansetron | ✓ | NaCl 0.9% | | 1 |
| Hyoscine BBr, Oxycodone | ✓ A,B | NaCl 0.9% / WFI | | 1,6 |
| ***Hyoscine Hydrobromide (Hyoscine HBr)*** | ✓ | NaCl 0.9% / WFI | | 1 |
| Hyoscine HBr, Ketorolac, Ranitidine | ✓ | NaCl 0.9% | | 1 |
| Hyoscine HBr, Levomepromazine, Morphine Sulfate | ✓ C | NaCl 0.9% | | 1 |
| Hyoscine HBr, Levomepromazine, Oxycodone | ✓ A,B,C | NaCl 0.9% | | 1 |
| Hyoscine HBr, Midazolam | ✓ A,B | NaCl 0.9% | | 8 |

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| DRUG | COMPATIBILITY | DILUENT | | COMMENT | REFERENCE |
|---|---|---|---|---|---|
| Hyoscine HBr, Midazolam, Morphine Sulfate | ✓ | NaCl 0.9% | WFI | | 1,2 |
| Hyoscine HBr, Midazolam, Morphine Tartrate | ✓ | NaCl 0.9% | | | 1 |
| Hyoscine HBr, Midazolam, Oxycodone | ✓ | NaCl 0.9% | WFI | | 2 |
| Hyoscine HBr, Morphine Sulfate, Octreotide | ✓ | NaCl 0.9% | | | 1 |
| Hyoscine HBr, Oxycodone | ✓ A,B | NaCl 0.9% | WFI | | 1,6 |
| ***Ketamine*** | ✓ C | NaCl 0.9% | | | 1 |
| Ketamine, Levomepromazine | ✓ C | NaCl 0.9% | | | 1 |
| Ketamine, Levomepromazine, Metoclopramide | ✓ C | NaCl 0.9% | | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity eg haloperidol, metoclopramide and levomepromazine | 2 |
| Ketamine, Levomepromazine, Oxycodone | ✓ C | NaCl 0.9% | | | 2 |
| Ketamine, Methadone | ✓ C | NaCl 0.9% | WFI | | 2 |
| Ketamine, Metoclopramide | ✓ C | NaCl 0.9% | | | 2 |
| Ketamine, Midazolam | ✓ C | NaCl 0.9% | | | 1 |
| Ketamine, Midazolam, Morphine Sulfate | ✓ C | NaCl 0.9% | WFI | | 2 |
| Ketamine, Midazolam, Oxycodone | ✓ C | NaCl 0.9% | WFI | | 2 |
| Ketamine, Morphine Sulfate | ✓ A,B,C | NaCl 0.9% | | | 9 |
| Ketamine, Oxycodone | ✓ A,B,C | NaCl 0.9% | WFI | | 6 |

# Syringe Driver Drug Compatibilities – Guide to Practice 2013

| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| ***Ketorolac*** | ✓ | NaCl 0.9% | Dilute maximally with NaCl 0.9%<br>Seek specialist advice | 1 |
| Ketorolac, Methadone | ✓ A,B,C | NaCl 0.9% | | 10 |
| Ketorolac, Oxycodone | ✓ B | NaCl 0.9% | | 1 |
| Ketorolac, Oxycodone, Ranitidine | ✓ B | NaCl 0.9% WFI | | 1 |
| Ketorolac, Ranitidine | ✓ | NaCl 0.9% | | 1 |
| ***Levomepromazine*** | ✓ C | NaCl 0.9% WFI | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 1 |
| Levomepromazine, Methadone, Midazolam | ✓ C | NaCl 0.9% | | 2 |
| Levomepromazine, Metoclopramide | ✓ C | NaCl 0.9% WFI | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 2 |
| Levomepromazine, Metoclopramide, Morphine Sulfate | ✓ A,B,C | NaCl 0.9% | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 1 |
| Levomepromazine, Metoclopramide, Octreotide | ✓ C | NaCl 0.9% WFI | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 1 |
| Levomepromazine, Metoclopramide, Oxycodone | ✓ A,B,C | NaCl 0.9% | Increased risk of extrapyramidal adverse effects when combining drugs with dopamine activity, e.g. haloperidol, metoclopramide and levomepromazine | 1 |
| Levomepromazine, Midazolam | ✓ C | NaCl 0.9% WFI | | 1 |
| Levomepromazine, Midazolam, Morphine Sulfate | ✓ A,B,C | NaCl 0.9% | | 1 |
| Levomepromazine, Midazolam, Octreotide | ✓ C | NaCl 0.9% | | 1 |
| Levomepromazine, Midazolam, Oxycodone | ✓ C | NaCl 0.9% WFI | | 2 |

# Syringe Driver Drug Compatibilities – Guide to Practice 2013

| DRUG | COMPATIBILITY | DILUENT | | COMMENT | REFERENCE |
|---|---|---|---|---|---|
| Levomepromazine, Morphine Sulfate | C | NaCl 0.9% | WFI | | 1,2 |
| Levomepromazine, Morphine Sulfate, Octreotide | C | NaCl 0.9% | WFI | | 2 |
| Levomepromazine, Octreotide | C | NaCl 0.9% | WFI | | 1,2 |
| Levomepromazine, Octreotide, Ondansetron | C | NaCl 0.9% | | | 1 |
| Levomepromazine, Octreotide, Oxycodone | B,C | NaCl 0.9% | WFI | | 1 |
| Levomepromazine, Ondansetron | C | NaCl 0.9% | WFI | | 1,2 |
| Levomepromazine, Ondansetron, Oxycodone | C | NaCl 0.9% | | | 2 |
| Levomepromazine, Oxycodone | A,B,C | NaCl 0.9% | WFI | | 1,6 |
| Levomepromazine, Ranitidine | CAUTION C | NaCl 0.9% | WFI | Combination appears to be physically incompatible with increasing levomepromazine concentration | 1 |
| ***Lignocaine*** | | NaCl 0.9% | | | 5 |
| ***Methadone*** | C | NaCl 0.9% | WFI | | 1 |
| Methadone, Midazolam | C | NaCl 0.9% | WFI | | 1,2 |
| Methadone Octreotide Ranitidine | C | NaCl 0.9% | | | 2 |
| ***Metoclopramide*** | | NaCl 0.9% | WFI | | 1 |
| Metoclopramide, Midazolam | B | NaCl 0.9% | | | 1 |
| Metoclopramide, Midazolam, Morphine Sulfate | A,B | NaCl 0.9% | | | 1 |

# Syringe Driver Drug Compatibilities – Guide to Practice 2013

| DRUG | COMPATIBILITY | DILUENT | COMMENT | REFERENCE |
|---|---|---|---|---|
| Metoclopramide, Midazolam, Oxycodone | ✓ A,B | NaCl 0.9% | | 1 |
| Metoclopramide, Midazolam, Ranitidine | ✓ | NaCl 0.9% | | 2 |
| Metoclopramide, Morphine Sulfate | ✓ | NaCl 0.9% WFI | | 1,2 |
| Metoclopramide, Morphine Sulfate, Octreotide | ✓ | NaCl 0.9% | | 2 |
| Metoclopramide, Morphine Sulfate, Ranitidine | ✓ | NaCl 0.9% | | 2 |
| Metoclopramide, Morphine Sulfate, Ondansetron | ✓ | NaCl 0.9% | | 1 |
| Metoclopramide, Morphine Tartrate | ✓ | NaCl 0.9% | | 1 |
| Metoclopramide, Octreotide | ✓ | NaCl 0.9% WFI | | 1,2 |
| Metoclopramide, Octreotide, Oxycodone | ✓ | NaCl 0.9% WFI | | 1,2 |
| Metoclopramide, Ondansetron | ✓ A,B | NaCl 0.9% | | 1 |
| Metoclopramide, Ondansetron, Oxycodone | ✓ | NaCl 0.9% | | 1 |
| Metoclopramide, Oxycodone | ✓ A,B | NaCl 0.9% WFI | | 1,6 |
| Metoclopramide, Ranitidine | ✓ | NaCl 0.9% | | 2 |
| ***Midazolam*** | ✓ | NaCl 0.9% WFI | | 1 |
| Midazolam, Morphine Sulfate | ✓ | NaCl 0.9% WFI | | 1,2 |
| Midazolam, Morphine Sulfate, Octreotide | ✓ | NaCl 0.9% | | 1 |

# Syringe Driver Drug Compatibilities – Guide to Practice 2013

| DRUG | COMPATIBILITY | DILUENT | | COMMENT | REFERENCE |
|---|---|---|---|---|---|
| Midazolam, Morphine Sulfate, Ondansetron | ✓ | NaCl 0.9% | | | 2 |
| Midazolam, Octreotide, Oxycodone | ✓ | NaCl 0.9% | | | 1 |
| Midazolam, Olanzapine | ✓ | NaCl 0.9% | | | 1 |
| Midazolam, Ondansetron | ✓ A,B | NaCl 0.9% | | | 1 |
| Midazolam, Ondansetron, Oxycodone | ✓ | NaCl 0.9% | | | 1 |
| Midazolam, Oxycodone | ✓ A,B | NaCl 0.9% | WFI | | 1,6 |
| ***Morphine Sulfate*** | ✓ | NaCl 0.9% | WFI | | 1 |
| Morphine Sulfate, Octreotide | ✓ | NaCl 0.9% | WFI | | 1,2 |
| Morphine Sulfate, Ondansetron | ✓ A,B | NaCl 0.9% | | | 1 |
| ***Octreotide*** | ✓ | NaCl 0.9% | WFI | | 1 |
| Octreotide, Ondansetron | ✓ B | NaCl 0.9% | WFI | | 1 |
| Octreotide, Ondansetron, Oxycodone | ✓ B | NaCl 0.9% | WFI | | 1 |
| Octreotide, Oxycodone | ✓ B | NaCl 0.9% | WFI | | 1,2 |
| ***Olanzapine*** | ✓ | NaCl 0.9% | WFI | Initial dilution of powder with WFI prior to further dilution | 1 |
| ***Ondansetron*** | ✓ | NaCl 0.9% | WFI | | 1 |
| Ondansetron, Oxycodone | ✓ | NaCl 0.9% | WFI | | 1,2 |

# Syringe Driver Drug Compatibilities – Guide to Practice 2013

| DRUG | COMPATIBILITY | DILUENT | | COMMENT | REFERENCE |
|---|---|---|---|---|---|
| ***Oxycodone*** | ✓ | NaCl 0.9% | WFI | | 1 |
| Oxycodone, Ranitidine | ✓ B | NaCl 0.9% | WFI | | 1 |
| ***Ranitidine*** | ✓ | NaCl 0.9% | WFI | | 1 |
| ***Sufentanil*** | ✓ | NaCl 0.9% | | Little compatibility data is available. Incompatibility has not been observed in combination with clonazepam, ketamine, methadone, levomepromazine, metoclopramide, midazolam and octreotide | 5,11 |

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