Eastern Metropolitan Region
Palliative Care Consortium

Eastern Metropolitan Region Palliative Care Consortium (Victoria)

Syringe Driver Drug Compatibilities – Guide to Palliative Care Practice 2016

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INSTRUCTIONS FOR USE

It is highly recommended this guide is used electronically or printed in colour, to aid ease of use.

Contents

Name used in this document	Full title	Previously called
Glycopyrronium	Glycopyrronium bromide (glycopyrrolate)	Glycopyrrolate
Lidocaine	Lidocaine (lignocaine) hydrochloride	Lignocaine hydrochloride anhydrous
Phenobarbitone	Phenobarbital (phenobarbitone) sodium	Phenobarbitone sodium

https://www.tga.gov.au/updating-medicine-ingredient-names-list-affected-ingredients

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DISCLAIMER

The information in this palliative care document is intended as a guide only. It is the responsibility of the user to ensure information is used correctly. This guide reflects adult palliative care practice in Victoria and is based on 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.

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

IMPORTANT CONSIDERATIONS

- It is recommended that the number of drugs in one syringe be limited to **three**.
- Caution should be used when combining drugs in syringe drivers; mixtures should be closely monitored for discolouration, precipitation and crystallisation.
- Infusion durations in this guide are for 24 hours.
- **Sodium chloride 0.9% is the diluent used in this guide, except where stated.**
- **Subcutaneous administration of a drug may be off-label prescribing**
- Drug doses should be modified in response to the adult 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.

If you require further information regarding drug combinations and compatibility data, contact a hospital-based pharmacy drug information service working with a specialist palliative care service.

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
	Appears compatible. Information is gathered from the clinical setting based on observation of the drug combination on mixing and during infusion for any physical changes, e.g. precipitation, discolouration or clouding. The information is not validated evidence based research.
	Compatibility information available based on laboratory data
 A	A = Chemically Compatible. Compatibility data obtained by laboratory analysis in the stated drug combination, in the usual diluent and over a range of temperatures.
 B	B = Physically Compatible. The lack of physical change such as discoloration, clouding or crystallization tested microscopically or by laboratory analysis.
 C	C = potential for site reaction. See 'Infusion site problems' p.4
	Conflicting information regarding compatibility – proceed with caution Caution can apply to clinical and evidence based compatibility reports
	Incompatible
WFI	Water for Injection

Compatibility

Compatibility is 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. In this guide, infusion durations are for 24 hours.
Monitoring of the combined drugs in the syringe driver throughout the infusion period is advised.

Sodium chloride 0.9% is the diluent used routinely in Victorian practice, except for cyclizine which is diluted with Water for Injection.
Sodium Chloride 0.9% is used as the diluent throughout this guide, unless otherwise stated.

When combining medications for syringe driver use, be aware that laboratory compatibility data is available for only a few drug combinations**.** As a consequence, the majority of combinations listed in this guide are observational data.

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]

The syringe drive database available at www.palliativedrugs.com can be accessed after registration. Combinations on the database have been assessed by palliativedrugs.com pharmacists. The information is not substantiated but is observational data. The database may contain information not included in this document. The database states that "*drugs may be compatible at certain concentrations and not at others, therefore it is recommended that the concentration of drug in solution is compared, not the dose"* [2]

Infusion site problems

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**.
Sodium Chloride 0.9% is recommended as diluent as it is closest to physiological tonicity, therefore less likely to cause irritation. Cyclizine should always be diluted with Water for Injection. .
Subcutaneous 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 sodium chloride 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].

Syringe Driver Information

For further information on the use of syringe drivers see Guidelines for Subcutaneous Infusion Device Management in Palliative Care – second edition 2010 available at https://www.health.qld.gov.au/cpcre/publicns.asp[3]

Syringe Driver Drug Compatibilities – Guide to Palliative Care Practice 2016

DRUG	COMPATIBILITY	COMMENT	REFERENCE
Clonazepam	A,B	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.	1,5
Clonazepam, Cyclizine, Morphine Sulfate		WFI Diluent must be water for injection due to cyclizine.	1
Clonazepam, Glycopyrronium, Oxycodone			2
Clonazepam, Haloperidol, Methadone	C	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Clonazepam, Haloperidol, Morphine Sulfate		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	2
Clonazepam, Haloperidol, Morphine Tartrate		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1,2
Clonazepam, Haloperidol, Oxycodone	B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Clonazepam, Hydromorphone			2
Clonazepam, Hyoscine Butylbromide			2
Clonazepam, Hyoscine Butylbromide, Morphine Sulfate			1
Clonazepam, Hyoscine Butylbromide, Oxycodone	B		1
Clonazepam, Ketamine, Morphine Tartrate	C		1
Clonazepam, Ketamine, Oxycodone	C		2
Clonazepam, Ketorolac, Oxycodone		Dilute ketorolac maximally with sodium chloride 0.9%.	2
Clonazepam, Levomepromazine, Methadone	C		2
Clonazepam, Levomepromazine, Morphine Sulfate	C		1
Clonazepam, Levomepromazine, Ondansetron	C		2

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DRUG	COMPATIBILITY		COMMENT	REFERENCE
Clonazepam, Levomepromazine, Oxycodone	C			1,2
Clonazepam, Methadone	C			1
Clonazepam, Metoclopramide, Oxycodone	B			1
Clonazepam, Morphine Sulfate				1
Clonazepam, Octreotide, Oxycodone				1,2
Clonazepam, Oxycodone	B			1
Cyclizine	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.	1,6
Cyclizine, Fentanyl			Not compatible – crystallization reported.	2
Cyclizine, Glycopyrronium, Haloperidol	C	WFI		2
Cyclizine, Glycopyrronium, Morphine Sulfate	C	WFI		2
Cyclizine, Glycopyrronium, 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		1,2
Cyclizine, Haloperidol, Hyoscine Butylbromide			Not compatible – crystallization reported.	2
Cyclizine, Haloperidol, Metoclopramide	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		1,2
Cyclizine, Haloperidol, Morphine Sulfate	A,B,C	WFI		1

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DRUG	COMPATIBILITY		COMMENT	REFERENCE
Cyclizine, Haloperidol, Octreotide	C	WFI		2
Cyclizine, Haloperidol, Oxycodone	CAUTION 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
Cyclizine, Hydromorphone, Octreotide	C	WFI		1
Cyclizine, Hyoscine Butylbromide			Cyclizine may crystallize with hyoscine butylbromide.	2
Cyclizine, Hyoscine Butylbromide, Morphine Sulfate			Cyclizine may crystallize with hyoscine butylbromide.	1
Cyclizine, Hyoscine Butylbromide, Oxycodone			Cyclizine may crystallize with hyoscine butylbromide.	2
Cyclizine, Levomepromazine	C	WFI	Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects.	2
Cyclizine, Levomepromazine, Morphine Sulfate	C	WFI	Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects.	1,2
Cyclizine, Levomepromazine, Octreotide	C	WFI	Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects.	2
Cyclizine, Levomepromazine, Oxycodone	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. Cyclizine and levomepromazine are generally not administered together due to an increased risk of adverse effects.	1
Cyclizine, Methadone	C	WFI		2
Cyclizine, 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. The prokinetic effect of metoclopramide may be inhibited by cyclizine.	1,2
Cyclizine, Metoclopramide, Octreotide	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. The prokinetic effect of metoclopramide may be inhibited by cyclizine.	1
Cyclizine, Midazolam	C	WFI		1,2

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DRUG	COMPATIBILITY	COMMENT		REFERENCE
Cyclizine, Midazolam, Morphine Sulfate	A,B,C	WFI		1
Cyclizine, Midazolam, Oxycodone	CAUTION 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, Morphine Sulfate	C	WFI		1
Cyclizine, Morphine Sulfate, Octreotide	C	WFI		2
Cyclizine, Morphine Tartrate	C	WFI		2
Cyclizine, Octreotide	C	WFI		2
Cyclizine, Octreotide, Oxycodone	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, Ondansetron, Oxycodone		Not compatible – crystallization reported.		2
Cyclizine, Oxycodone	CAUTION 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.	1,7
Fentanyl	A,B	The volume of fentanyl injection may restrict its use in the syringe driver. A separate or 12 hourly syringe driver may be required.		1,5
Fentanyl, Haloperidol, Midazolam		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.		1
Fentanyl, Hyoscine Butylbromide, Midazolam	A,B			1
Fentanyl, Ketamine	B,C			6,8
Fentanyl, Metoclopramide, Midazolam	A,B			1
Fentanyl, Midazolam	A,B			1
Fentanyl, Ondansetron	A,B			1

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Glycopyrronium	✓ A,B		1,5
Glycopyrronium, Haloperidol, Ondansetron	✓	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Glycopyrronium, Ketamine, Oxycodone	✓ C		2
Glycopyrronium, Levomepromazine, Midazolam	✓ C		1
Glycopyrronium, Levomepromazine, Morphine Sulfate	✓ C		1
Glycopyrronium, Levomepromazine, Octreotide	✓ C		1
Glycopyrronium, Levomepromazine, Oxycodone	✓ C		1
Glycopyrronium, Methadone, Midazolam	✓ C		1
Glycopyrronium, Metoclopramide, Morphine Sulfate	✓	The prokinetic effect of metoclopramide may be inhibited by glycopyrronium.	1
Glycopyrronium, Metoclopramide, Oxycodone	✓	The prokinetic effect of metoclopramide may be inhibited by glycopyrronium.	2
Glycopyrronium, Midazolam	✓		2
Glycopyrronium, Midazolam, Morphine Sulfate	✓		1,2
Glycopyrronium, Midazolam, Oxycodone	✓		1
Glycopyrronium, Ondansetron	✓ A,B		1
Glycopyrronium, Oxycodone	✓ A,B		2,6

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Haloperidol	B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1,5
Haloperidol, Hydromorphone		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Haloperidol, Hydromorphone, Ketamine	C	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	2
Haloperidol, Hydromorphone, Metoclopramide		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	2
Haloperidol, Hydromorphone, Midazolam		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	2
Haloperidol, Hydromorphone, Ranitidine		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	2
Haloperidol, Hyoscine Butylbromide	CAUTION B	Haloperidol diluted with sodium chloride 0.9% above 1.25mg/mL is incompatible with hyoscine butylbromide.	1
Haloperidol, Hyoscine Butylbromide Oxycodone	CAUTION B	Haloperidol diluted with sodium chloride 0.9% above 1.25mg/mL is incompatible with hyoscine butylbromide.	1
Haloperidol, Hyoscine Butylbromide, Metoclopramide	CAUTION	Haloperidol diluted with sodium chloride 0.9% above 1.25mg/mL is incompatible with hyoscine butylbromide.	2
Haloperidol, Hyoscine Butylbromide, Midazolam	CAUTION B	Haloperidol diluted with sodium chloride 0.9% above 1.25mg/mL is incompatible with hyoscine butylbromide.	1
Haloperidol, Hyoscine Butylbromide, Morphine Sulfate	CAUTION	Haloperidol diluted with sodium chloride 0.9% above 1.25mg/mL is incompatible with hyoscine butylbromide.	1,2
Haloperidol, Hyoscine Butylbromide, Ranitidine	CAUTION	Haloperidol diluted with sodium chloride 0.9% above 1.25mg/mL is incompatible with hyoscine butylbromide.	2
Haloperidol, Ketamine	C	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1,2
Haloperidol, Ketamine, Methadone	C	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	2
Haloperidol, Ketamine, Morphine Sulfate	C	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Haloperidol, Ketamine, Oxycodone	B,C	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Haloperidol, Levomepromazine, Morphine Sulfate	C	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity e.g. haloperidol, metoclopramide and levomepromazine.	2
Haloperidol, Metoclopramide	B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1
Haloperidol, Metoclopramide, Midazolam	B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9% Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1
Haloperidol, Metoclopramide, Morphine Sulfate		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1,2
Haloperidol, Metoclopramide, Morphine Tartrate		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	2
Haloperidol, Metoclopramide, Octreotide		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9% Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	2
Haloperidol, Metoclopramide, Ranitidine		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	2
Haloperidol, Midazolam	A,B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	9
Haloperidol, Midazolam, Morphine Sulfate	A,B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Haloperidol, Midazolam, Octreotide		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1,2
Haloperidol, Midazolam, Oxycodone	B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Haloperidol, Morphine Sulfate		Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1,2

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Haloperidol, Morphine Sulfate, Octreotide	✓	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Haloperidol, Morphine Tartrate	✓	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1
Haloperidol, Octreotide	✓	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1,2
Haloperidol, Octreotide, Oxycodone	✓	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	2
Haloperidol, Ondansetron	✓	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	2
Haloperidol, Oxycodone	✓ A,B	Haloperidol at concentrations greater than 1mg/mL may precipitate in sodium chloride 0.9%.	1,2,7
Hydromorphone	✓ A,B		1,5
Hydromorphone, Hyoscine Butylbromide	✓		2
Hydromorphone ,Hyoscine Butylbromide, Levomepromazine	✓ C		2
Hydromorphone, Hyoscine Butylbromide, Midazolam	✓		2
Hydromorphone, Ketamine	✓ A,B,C		1
Hydromorphone, Ketamine, Levomepromazine	✓ C		2
Hydromorphone, Ketamine, Midazolam	✓ C		1,2
Hydromorphone, Ketorolac, Metoclopramide	✓	Dilute ketorolac maximally with sodium chloride 0.9%.	2
Hydromorphone, Levomepromazine	✓ C		2
Hydromorphone, Levomepromazine, Metoclopramide	✓ C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity e.g. haloperidol, metoclopramide and levomepromazine.	2
Hydromorphone, Levomepromazine, Midazolam	✓ C		2

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Hydromorphone, Levomepromazine, Ranitidine	CAUTION C	Levomepromazine & ranitidine combinations appear to exhibit concentration dependent physical incompatibility[1].	1,2
Hydromorphone, Metoclopramide	✓		2
Hydromorphone, Metoclopramide, Midazolam	✓		1,2
Hydromorphone, Metoclopramide, Octreotide	✓		2
Hydromorphone, Metoclopramide, Ondansetron	✓		2
Hydromorphone, Midazolam	✓ A,B		1
Hydromorphone, Octreotide, Ondansetron	✓		2
Hydromorphone, Ondansetron	✓ A,B		1
Hyoscine Butylbromide (Hyoscine BBr)	✓		1
Hyoscine BBr, Ketamine, Levomepromazine	✓ C		2
Hyoscine BBr, Ketorolac, Methadone	CAUTION C	Dilute ketorolac maximally with sodium chloride 0.9%. Precipitation has been observed on initial combination of ketorolac and methadone.	2,10
Hyoscine BBr, Levomepromazine, Morphine Sulfate	✓ A,B,C		1
Hyoscine BBr, Levomepromazine, Octreotide	✓ C		1,2
Hyoscine BBr, Levomepromazine, Ondansetron	✓ C		2
Hyoscine BBr, Levomepromazine, Oxycodone	✓ A,B,C		1
Hyoscine BBr, Methadone, Ranitidine	✓ C		2

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Hyoscine BBr, Metoclopramide, Midazolam	B	The prokinetic effect of metoclopramide may be inhibited by hyoscine butylbromide.	1
Hyoscine BBr, Midazolam	B		1
Hyoscine BBr, Midazolam, Morphine Sulfate			1,2
Hyoscine BBr, Midazolam, Octreotide			2
Hyoscine BBr, Midazolam, Oxycodone			1,2
Hyoscine BBr, Morphine Sulfate, Octreotide			1
Hyoscine BBr, Morphine Sulfate, Ondansetron			1
Hyoscine BBr, Octreotide, Ondansetron			2
Hyoscine BBr, Octreotide, Ranitidine			2
Hyoscine BBr, Oxycodone	A,B		1,2,7
Hyoscine BBr, Oxycodone, Ranitidine			2
Hyoscine BBr, Rantidine			2
Ketamine	A,B,C		1,5
Ketamine, Levomepromazine	C		1
Ketamine, Levomepromazine, Metoclopramide	C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity e.g. haloperidol, metoclopramide and levomepromazine.	2
Ketamine, Levomepromazine, Oxycodone	C		2

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Ketamine, Methadone	C		2
Ketamine, Metoclopramide	C		2
Ketamine, Midazolam	C		1,2
Ketamine, Midazolam, Morphine Sulfate	C		2
Ketamine, Midazolam, Oxycodone	C		2
Ketamine, Morphine Sulfate	A,C		11
Ketamine, Oxycodone	A,B,C		2,7
Ketorolac	A,B	Dilute maximally with sodium chloride 0.9%.	1,5
Ketorolac, Methadone	CAUTION B,C	Dilute maximally with sodium chloride 0.9%. Precipitation observed on initial combination of ketorolac and methadone.	10
Ketorolac, Octreotide		Dilute maximally with sodium chloride 0.9%.	2
Ketorolac, Oxycodone	B	Dilute maximally with sodium chloride 0.9%.	1
Ketorolac, Oxycodone, Ranitidine	B	Dilute maximally with sodium chloride 0.9%.	1
Ketorolac, Ranitidine		Dilute maximally with sodium chloride 0.9%.	1
Levomepromazine	A,C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1,5
Levomepromazine, Methadone, Midazolam	C		2
Levomepromazine, Metoclopramide	C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	2

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Levomepromazine, Metoclopramide, Midazolam	C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	2
Levomepromazine, Metoclopramide, Morphine Sulfate	A,B,C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1
Levomepromazine, Metoclopramide, Octreotide	C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1
Levomepromazine, Metoclopramide, Oxycodone	A,B,C	Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	1
Levomepromazine, Metoclopramide, Ranitidine	CAUTION C	Levomepromazine & ranitidine combinations appear to exhibit concentration dependent physical incompatibility[1]. Increased risk of extrapyramidal adverse effects when combining drugs with anti-dopaminergic activity, e.g. haloperidol, metoclopramide and levomepromazine.	2
Levomepromazine, Midazolam	C		1,2
Levomepromazine, Midazolam, Morphine Sulfate	A,B,C		1
Levomepromazine, Midazolam, Octreotide	C		1
Levomepromazine, Midazolam, Oxycodone	A,B,C		1
Levomepromazine, Morphine Sulfate	C		1,2
Levomepromazine, Morphine Sulfate, Octreotide	C		2
Levomepromazine, Octreotide	C		2
Levomepromazine, Octreotide, Ondansetron	C		1
Levomepromazine, Octreotide, Oxycodone	B,C		1
Levomepromazine, Ondansetron	C		1,2
Levomepromazine, Ondansetron, Oxycodone	C		1,2

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Levomepromazine, Oxycodone	A,B,C		1,2,7
Levomepromazine, Oxycodone, Ranitidine	CAUTION C	Levomepromazine & ranitidine combinations appear to exhibit concentration dependent physical incompatibility[1].	2
Levomepromazine, Ranitidine	CAUTION C	Levomepromazine & ranitidine combinations appear to exhibit concentration dependent physical incompatibility[1].	1
Lidocaine	A,B		5
Methadone	A,C		1,5
Methadone, Midazolam	C		1
Methadone, Octreotide, Ranitidine	C		2
Metoclopramide	A,B		1,5
Metoclopramide, Midazolam	B		1
Metoclopramide, Midazolam, Morphine Sulfate	A,B		1
Metoclopramide, Midazolam, Oxycodone	A,B		1
Metoclopramide, Midazolam, Ranitidine			2
Metoclopramide, Morphine Sulfate			1,2
Metoclopramide, Morphine Sulfate, Octreotide			1,2
Metoclopramide, Morphine Sulfate, Ranitidine			2
Metoclopramide, Morphine Sulfate, Ondansetron			1
Metoclopramide, Morphine Tartrate			1,2

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Metoclopramide, Octreotide	✓		2
Metoclopramide, Octreotide, Oxycodone	✓		1
Metoclopramide, Ondansetron	✓ A,B		1
Metoclopramide, Ondansetron, Oxycodone	✓		1
Metoclopramide, Oxycodone	✓ A,B		1,2,7
Metoclopramide, Oxycodone, Ranitidine	CAUTION	Yellow discoloration observed.	2
Metoclopramide, Ranitidine	✓		2
Midazolam	✓ A,B		1,5
Midazolam, Morphine Sulfate	✓		1,2
Midazolam, Morphine Sulfate, Octreotide	✓		1,2
Midazolam, Morphine Sulfate, Ondansetron	✓		2
Midazolam, Octreotide, Oxycodone	✓		1
Midazolam, Olanzapine	✓	WFI — Reconstitute olanzapine powder with water for injection prior to further dilution with sodium chloride 0.9%.	1
Midazolam, Ondansetron	✓ A,B		1
Midazolam, Ondansetron, Oxycodone	✓		1
Midazolam, Oxycodone	✓ A,B		1,2,7

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Morphine Sulfate	A,B		1,5
Morphine Sulfate, Octreotide			1,2
Morphine Sulfate, Ondansetron	A,B		1
Morphine Tartrate			1
Octreotide	A,B		1,5
Octreotide, Ondansetron			1,2
Octreotide, Ondansetron, Oxycodone	B		1
Octreotide, Oxycodone	B		1
Octreotide, Ranitidine			2
Olanzapine		WFI Reconstitute olanzapine powder with water for injection prior to further dilution with sodium chloride 0.9%.	1
Ondansetron	A,B		1,5
Ondansetron, Oxycodone	B		1
Oxycodone	A,B		1,5
Oxycodone, Ranitidine	B		1

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DRUG	COMPATIBILITY	COMMENT	REFERENCE
Phenobarbital	A,B,C	Phenobarbital has an alkaline pH and can cause tissue necrosis when administered as subcutaneous bolus injection. In practice, phenobarbital can be initiated with a bolus intramuscular or intravenous injection, then via subcutaneous infusion with sodium chloride 0.9% as diluent. It should be given via a separate syringe driver. Dilution up to 10 times is recommended.	1,5,12
Ranitidine	A,B		1,5
Sufentanil	A,B	Variable compatibility has been reported due to sorption on some containers Little compatibility data is available. Incompatibility has not been observed in combination with clonazepam, ketamine, methadone, levomepromazine, metoclopramide, midazolam and octreotide.	1,5,13

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