

## PRESENTATION

Naloxone Hydrochloride 400 micrograms/1ml ampoule.

## ACTIONS

Antagonism of the effects (including respiratory depression) of opioid drugs.

## ADDITIONAL INFORMATION

Naloxone may be administered intramuscularly, **undiluted**, (into the outer aspect of the thigh or upper arm) when IV access is impossible, but absorption may be slow. Wherever possible, the IV route should be used.

Overdose with opioid drugs can be fatal as a result of respiratory and cardiovascular depression. The effects of naloxone are **short lived** and patients frequently relapse once the drug has worn off. **All** cases of opioid overdose should be transported to hospital, even if the initial response to naloxone has been good. If the patient refuses, consider, if the patient consents, a loading dose of **800 micrograms IM** to minimise the risk described above.

Some prescription opioid drugs include:

<b>Buprenorphine</b>	(Temgesic)
<b>Codeine</b>	(Used in combination in Codis, Diarrest, Migralve, Paracodol, Phensedyl, Solpadeine, Solpadol, Syndol, Terpoin, Tylex, Veganin)
<b>Dextromoramide</b>	(Palfium)
<b>Dipipanone</b>	(Dicanol)
<b>Dextropropoxyphene</b>	(Used in combination in Distalgesic/co-proxamal)
<b>Diamorphine</b>	('Heroin')
<b>Dihydrocodeine</b>	(Co-dydramol, DF 118)
<b>Meptazinol</b>	(Meptid)
<b>Methadone</b>	(Physeptone, Methadose)
<b>Morphine</b>	(Oramorph, Sevredol, MST Continus, SRM-Rhotard)
<b>Oxycodone</b>	(Oxycontin)
<b>Pentazocine</b>	(Fortral)
<b>Pethidine</b>	(Pamergan)
<b>Phenazocine</b>	(Narphen)

**NOTE:** This list is not comprehensive, other opioid drugs are available.

## INDICATIONS

Respiratory depression, depression of cardiovascular system and central nervous system depression associated with opioid overdose.

Accidental overdose of opioid drugs, e.g. morphine, nalbuphine.

Overdose of some common analgesics, e.g. co-proxamol (Distalgesic) containing substances such as dextropropoxyphene and codeine (in combination with paracetamol) produce respiratory depression, which is reversed by naloxone.

Unconsciousness associated with respiratory depression of unknown cause, where opioid overdose is a possibility. (Refer to depressed level of consciousness guideline).

## CONTRA-INDICATIONS

1. Neonatal patients of opioid addicted mothers, as serious withdrawal effects may occur – emphasis should be on bag-valve-mask ventilation and oxygenation.

## SIDE EFFECTS

In patients who are physically dependent on narcotic drugs, violent withdrawal symptoms, including cardiac arrhythmias, may be precipitated by naloxone. Ideally, in these cases titrate the dose of naloxone as described above, to effectively reverse the cardiac and respiratory depression, but still leave the patient in a groggy state.

**DOSAGE AND ADMINISTRATION**

**Respiratory arrest/extreme respiratory depression** – When the **URGENCY** of the situation outweighs the need for a controlled effect.

**Route:** IV/IM bolus

**Concentration** – 400 micrograms in 1ml.

AGE	DOSE	VOLUME
Adult	400 micrograms ( <b>IV</b> )	1ml
Adult	800 micrograms ( <b>IM</b> )	2ml

If there is no response administer further doses of **400 micrograms**, every 2-3 minutes until an effect is noted.

Repeated doses may need to be given up to every 2-3 minutes en-route to hospital, as the half-life of naloxone is short.

The maximum dose of naloxone is **10 milligram** (equivalent to 25 repeat doses of **400 micrograms**).

**Respiratory Depression** – When a more **CONTROLLED** effect is required, e.g. in known or potentially aggressive patients who are suffering respiratory **depression** rather than arrest, dilute up to 800 micrograms (2ml) of naloxone into 8ml of water for injections or sodium chloride intravenous infusion 0.9% (to a total of 10ml). Administer IV by slow injection, titrated to response. Aim to relieve respiratory depression, but maintain patient in 'groggy' state.

**Route:** IV/IM

**Concentration** – 400 micrograms in 1ml.

AGE	FIRST DOSE	VOLUME	SUBSEQUENT DOSE	VOLUME
11 years	352 micrograms	<b>0.88ml</b>	3520 micrograms	<b>8.8ml</b>
10 years	320 micrograms	<b>0.80ml</b>	3200 micrograms	<b>8.0ml</b>
9 years	288 micrograms	<b>0.72ml</b>	2880 micrograms	<b>7.2ml</b>
8 years	260 micrograms	<b>0.65ml</b>	2600 micrograms	<b>6.5ml</b>
7 years	232 micrograms	<b>0.58ml</b>	2320 micrograms	<b>5.8ml</b>
6 years	208 micrograms	<b>0.52ml</b>	2080 micrograms	<b>5.2ml</b>
5 years	184 micrograms	<b>0.46ml</b>	1840 micrograms	<b>4.6ml</b>
4 years	164 micrograms	<b>0.41ml</b>	1640 micrograms	<b>4.1ml</b>
3 years	144 micrograms	<b>0.36ml</b>	1440 micrograms	<b>3.6ml</b>
2 years	124 micrograms	<b>0.31ml</b>	1240 micrograms	<b>3.1ml</b>
18 months	112 micrograms	<b>0.28ml</b>	1120 micrograms	<b>2.8ml</b>
12 months	100 micrograms	<b>0.25ml</b>	1000 micrograms	<b>2.5ml</b>
9 months	88 micrograms	<b>0.22ml</b>	880 micrograms	<b>2.2ml</b>
6 months	78 micrograms	<b>0.19ml</b>	800 micrograms	<b>2.0ml</b>
3 months	60 micrograms	<b>0.15ml</b>	600 micrograms	<b>1.5ml</b>
1 month	44 micrograms	<b>0.11ml</b>	440 micrograms	<b>1.1ml</b>
Birth <b>IM ONLY</b>	200 micrograms	<b>0.50ml</b>	N/A	<b>N/A</b>

If **NO** response (or a partial but inadequate response), a subsequent dose of **100 micrograms/kg** (**NOTE:** this is 10 times the initial dose)