Naloxone Hydrochloride for Inpatient Use:

Guidance for use in acute opioid overdose & opioid-induced respiratory depression

Urgent Action to be taken

- **Step One:** Stop administration of the opioid medicine
- **Step Two:** Consider administration of naloxone - read the 'important safety information' and then follow the advice below for the appropriate indication

Important safety information

- Doses usually used in acute opioid overdose may not be appropriate for the management of opioid-induced respiratory depression and sedation in patients receiving opioids for palliative care and/or long-term use. This is due to the potential for acute withdrawal syndrome (AWS).
- Respiratory depression is diagnosed as:
    - respiratory rate is 8 breaths per minute or less, and
    - person is barely rousable/unconscious and/or
    - person is cyanosed.

  The severity of the respiratory depression defines the acuteness of the toxicity, subsequent management, and whether naloxone is indicated.
- Particular caution is required when administering naloxone to patients with pre-existing cardiovascular disease or those receiving cardiotoxic drugs, as serious cardiovascular effects have been reported.
- Too rapid reversal of the opioid effect can cause AWS. Hypertension, cardiac arrhythmias, pulmonary oedema and cardiac arrest have all been described.
- Although the preferred route of administration is intravenous, due to its quicker onset of action, the clinical condition and competence of the person administering the medication may dictate that it be given via an alternative route. For this reason, this guidance only covers **intramuscular** or **subcutaneous** injection as these routes are applicable within TEWV.

Indications for use

Please note: the primary aim of treatment is to reverse toxic effects of opioids so that patients are not at risk of respiratory arrest, airway loss or opioid-related complications. The aim is not always to restore a normal level of consciousness.

The four main indications for use are listed below. Please click on the relevant link to be taken directly to the appropriate guidance:

- Emergency treatment of opioid overdose in adults
- Opioid-induced respiratory depression and sedation where full reversal is not desirable
- Opioid induced respiratory depression in palliative care (where opioids have been established)
- Reversal of postoperative respiratory depression in adults caused by natural and synthetic opioids (not included in this guidance).

The National Poisons Information Service (0344 892 0111) will provide specialist advice on management of opioid toxicity 24 hrs a day.

Presentation

Naloxone hydrochloride injection 400 micrograms per ml (1 ml ampoules)

Approved by	Drug & Therapeutics Committee
Date of Approval	26th September 2024
Date of Review	1st October 2027
Protocol Number	PHARM-0066-v4

Drug dosing and regimen

Indication	Dose and regimen	Instructions for dilution	Method of Administration
Emergency treatment of opioid overdose	By intramuscular or subcutaneous injection: • Initial dose: 400 micrograms • If no response after 2-3 minutes, give another 400 micrograms. • If there is still no response after another 2-3 minutes, repeat dose of 400 micrograms. Further doses may be required if respiratory function deteriorates. **For treatment of children please refer to the most recent version of the BNF for dosing advice.**	No dilution necessary when administering by intramuscular injection.	Although the preferred route of administration is intravenous, due to its quicker onset of action, the competence of TEWV staff dictates that it be given via intramuscular or subcutaneous route
Reversal of opioid-induced respiratory depression – full reversal not desirable	100 micrograms via intramuscular or subcutaneous injection at 2-minute intervals, according to response	Dilute 1 ml of 400 micrograms/ml naloxone to 4 mls using sodium chloride 0.9%. This gives 4 mls of solution at a concentration of 100 micrograms/ml.	After dilution give 1 ml (100 micrograms) boluses at 2-minute intervals until the patient is awake with a respiratory rate of 8 breaths/minute or greater. Continue observing sedation scores & respiratory rate every 15 minutes for 1 hour.
Opioid induced respiratory depression in palliative care	20 micrograms via intramuscular or subcutaneous injection every 2 minutes until satisfactory respiratory status.	Dilute 1 ml of 400 micrograms/ml naloxone to 10 mls with sodium chloride 0.9%.This gives 10 mls of solution at a concentration of 40 micrograms/ml.	After dilution, give 0.5 ml (20 micrograms) boluses by intramuscular or subcutaneous **injection**, every 2 minutes until satisfactory respiratory status.

Monitoring & Significant Adverse Drug Reactions

- Monitor blood pressure, pulse and respiratory rate regularly for at least four hours from the last dose of naloxone.
- Careful monitoring is required as long-acting opioids require reversal by naloxone infusion.
- Reversal of **buprenorphine** toxicity may require large doses of naloxone.

Other Information

- Naloxone is much shorter acting than opioids therefore staff should be aware that symptoms may return.
- Naloxone may reverse analgesia with a return of severe pain with hyperalgesia and, if physically dependent, severe withdrawal symptoms and agitation.

References

1. British National Formulary online accessed 20/9/24
2. SPC for Naloxone: https://www.medicines.org.uk/emc/product/6344/smpc – accessed 20/9/24
3. Reversing an adult opioid overdose with naloxone . Specialist Medicines Service - October 2022
4. Pharmaceutical Press, Palliative care formulary, 8th edition