Naloxone Intravenous for Adults

Who can administer

May be administered by registered competent doctor or nurse/midwife

Important information

- The duration of action of some opioids (e.g. methadone) may exceed that of naloxone and so repeated naloxone doses (or a continuous infusion) may be required [ref 6]
- **Doses used in acute opioid overdosage may not be appropriate** for the management of opioid-induced respiratory depression and sedation in those receiving **palliative care and in chronic opioid use (see differing doses below).** This is due to potential acute withdrawal syndrome [ref 6]
- See **Monitoring requirements**

Available preparations

Naloxone 400 microgram per 1ml ampoule

Naloxone 400 microgram per 1ml minijet

Reconstitution

Already in solution

Draw up using a 5 micron filter needle

Infusion fluids

Sodium chloride 0.9% or Glucose 5%

Methods of intravenous administration

Bolus intravenous injection (usual route, all indications)

- Administer via intravenous injection
- May be diluted (400mcg in 10mL) to facilitate administration of low doses [ref 6]
    - this dilution gives 100 micrograms in 2.5mL

Continuous intravenous infusion (administer using an electronically controlled infusion device)

- **Toxbase suggested concentration**
    - Add 4mg (10 x 400microgram vials) to 30mL infusion fluid (100micrograms per mL)

- **Alternative dilutions**
    - Add 10,000 micrograms (10mg = 25ml of 0.4mg per mL) to 25mL infusion fluid **(200micrograms/mL)** (unlicensed concentration) [ref 1]
    - Add 2,000 micrograms (2mg) to 500mL infusion fluid **(4micrograms per mL)**

Dose in adults

Important:

- Smaller intravenous doses are preferable for initial (non-respiratory arrest) treatment as this enables the clinician to ascertain the dose required to reverse respiratory depression whilst also avoiding the risk of acute iatrogenic opioid withdrawal [ref 3]

1: Opioid overdose - low-dose regimen [when there is risk of acute withdrawal, or when a continued therapeutic effect is required (e.g. postoperative use, palliative care)]; [ref 2]

- Initially 100 to 200 micrograms, then 100 micrograms for up to 2 doses at 1 minute intervals if no response to preceding dose
- Continue titrating up to a maximum of 2 mg until adequate response achieved
- If still no response, give a further 2 mg dose (4 mg dose may be required in seriously poisoned patients), then review diagnosis;
- Further doses may be required if respiratory function deteriorates following initial response

2. Opioid overdose - high-dose regimen (when rapid titration with naloxone is necessary to reverse potentially life-threatening effects) [ref 2]

- Give 400 micrograms by bolus intravenous injection
- If no response after 1 minute, give 800 micrograms
- If still no response after another 1 minute, repeat dose of 800 micrograms
- If still no response, give 2mg (4mg may be required in a seriously poisoned patient), then review diagnosis
- Further doses may be required if respiratory function deterioratesfollowing initial response[ref 2]
- If no response is observed after 10mg of naloxone has been administered, the diagnosis of opioid or partial-opioid induced toxicity should be questioned

Continuous intravenous infusion (see above for suitable dilutions)

- In some circumstances (see under Important information) it may be necessary to use a continuous infusion
    - **Initial rate** may be set at 60% of initial resuscitative intravenous injection dose in microgram/hour. (the initial resuscitative dose is that which maintained satisfactory respiratory effort for at least 15 minutes [ref 2])
    - For example, if 1200microgram dose given, consider an initial rate for this infusion of 720 micrograms per hour for the first hour and titrate to response.

3: Severe itch or vomiting due to PCA opiate, when standard antiemetics and antipruritics have failed[ref 4,5]

Severe itch or vomiting due to intrathecal or epidural morphine [ref 4,5]

- Give 40 micrograms intravenously
- Repeat every 20 minutes
- Use as needed until the analgesia/opiate regimen has been reviewed by the pain team or anaesthetist

Monitoring

- Frequent observation is required, initially every 15 minutes for the first hour and then every 30 minutes for the subsequent three to four hours after naloxone and for at least six hours after the suspected time of opioid use [ref 3,6]
    - if on infusion, and the dose or rate is changed, revert to monitoring every 15 minutes for the first hour [ref 3]
- The length of the observation period may need to be adjusted from this standard depending on the duration of the effect of the opioid(s) taken [ref 3]
- If a patient reports using a longer acting opioid or the clinician suspects this (e.g. methadone), the observation period may need to be extended up to 12 hours [ref 3]

Storage

- Store below 25^{0}C

References

SPC Naloxone hydrochloride injection USP 400 micrograms/ml Mercury 2023

UK SPC Hameln Pharma September 2023

1. Injectable Medicines Guide Medusa, accessed online 26/02/2026

2. BNF accessed via Medicinescomplete 26/02/2026

3. RCEM-: Guideline for the Assessment and Management of Acute Opioid Toxicity in Adults in the Emergency Department April 2024

4. Local expert opinion. December 10th, 2019 (email on file)

5. King Edward Memorial Hospital, Western Australia Adult medication monograph September 2017 (doses in this reference are higher than suggested by local expert)

6. Toxbase: accessed online 11/02/2026

Therapeutic classification

Opioid antagonists