UHSussex Guideline for the use of Naloxone in Adults

Staff/stakeholders involved in development:	Clinical Nurse Specialist, In patient Pain Service Medicines Safety Pharmacist (MSO) ACP & Lead Nurse Acute Pain Service
Division:	Core Services
Department:	Pharmacy
For use by:	All medical, nursing and pharmacy staff involved in patient care at UHSussex

Purpose:	To provide standardised guidance for staff involved in managing respiratory depression and opiate toxicity
This document supports: *Standards and legislation*	NHS England Patient Safety Alert: NHS/PSA/Re/2015/009 & NHS/PSA/W/2014/016R
Key related documents:	Algorithm for Bolus Administration of IV opioids to adults by nurses and ODPs Guideline for Patient Controlled Analgesia and Nurse Controlled Analgesia in Adults
If document is a revised version of a previous policy, please state what changes have been made from the previous version:	

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Version	Date	Author	Status	Comment
1.0	Jan 2017	MSO, Pain nurse		
2.0	June 2019	MSO, pain nurse		New AVCPU score, new prescribing advice
3.0	June 2023	MSO, Pain Nurse	Live	New sedation score and dosing algorithms
4.0				

Introduction

Naloxone is an opioid antagonist licensed for use in:

- Complete or partial reversal of central nervous system depression, especially respiratory depression caused by natural and synthetic opioids
- Treatment of suspected acute opioid overdose or intoxication

In November 2014, NHS England produced a patient safety alert highlighting the possible inappropriate use of large doses of naloxone in patients where caution should be taken to avoid rapid reversal as well as non-indicated use. This alert advised that additional safeguards should be put in place, to include a raised awareness of the need to use lower doses of naloxone in patients who are receiving long-term opioids and those receiving opioids in palliative care.
However, where a patient physically dependent on opioids has acutely overdosed, priority must be given to reverse the acute overdose, with close observations for and treatment of withdrawal consequences arising from this reversal.

Naloxone dosing

The aim of naloxone treatment is to reverse the toxic effects of opiates; it is **not** to restore a normal level of consciousness.
The dose of naloxone required varies depending on the indication and the patient being treated.

- Lower initial dose regimes are more suitable where full reversal of the opioid is not desirable e.g. patients on long-term opioids including palliative care patients, opioid misusers, treatment of acute pain
- Higher initial dose regimes are recommended in emergency situations associated with acute opioid overdose.

Respiratory depression

Opioid respiratory depression is defined by the UHS Acute/Inpatient Pain Service* as a respiratory rate of less than 8 breaths per min

- **and** an ACPVU (alert, new confusion, responds to verbal stimuli, responds to painful stimuli, unconscious) of P or U
- **or** a sedation score of 2 or more (2=easy to rouse but unable to stay awake- frequently drowsy and moderately sedated, 3= difficult to rouse-severely sedated).

*Algorithm for Bolus Administration of IV opioids to adults by nurses and ODPs, 2022

Safety information

Use of Naloxone in patients where it is not indicated, or in larger than recommended doses, can lead to rapid reversal of the physiological effects for pain control. This can cause the patient intense pain and distress. There is also risk of increased sympathetic nervous stimulation and cytokine release precipitating an acute withdrawal syndrome. Hypertension, cardiac arrhythmias, pulmonary oedema and cardiac arrest may result in appropriate doses of naloxone being used for these types of patients.

Naloxone is not indicated for opiate induced delirium or slight sedation.

Opioid induced respiratory depression/sedation

1. Suspend all opioids (incl PCA, epidural infusion, syringe driver, patches)
2. Call for assistance
3. Give oxygen
4. Lay patient in recovery position if appropriate
5. Monitoring sedation score, respiratory rate, SATS, pulse and BP
6. Gain IV access (if delay, IM or SC administration can be used but onset may be longer)
7. Prepare naloxone – give according to pathway below
8. Prepare anti emetics and administer as soon as possible (naloxone has emetic effect)
9. Consider causes – what opioids have been given regularly and PRN, what sedatives been administered and any renal impairment etc.

If no response to naloxone, a differential diagnosis must be considered.

NB: Buprenorphine is a partial agonist and therefore naloxone may be less effective at reversal. Higher doses may be required.

Prescribing

Select the appropriate protocol on EPMA (see pathway re use in acute opiate overdose **or** post op/chronic opiate users/palliative care patients.)

Monitoring

Following diagnosis of opioid induced respiratory depression and/or sedation that requires naloxone administration, close observation must be continued at minimum 15 minute intervals up to 2 hours. This may have to be prolonged if epidural opioids, patches, MR preparations etc have been used due to the very short half-life of naloxone.

Consider where the patient can be safely monitored eg in the current location or if they need transfer.

Monitor sedation score, respiratory rate, SATS, pulse and BP.

Follow up

Patient must be reviewed a few hours after the last dose of naloxone in order to consider their pain management plan.

Stock

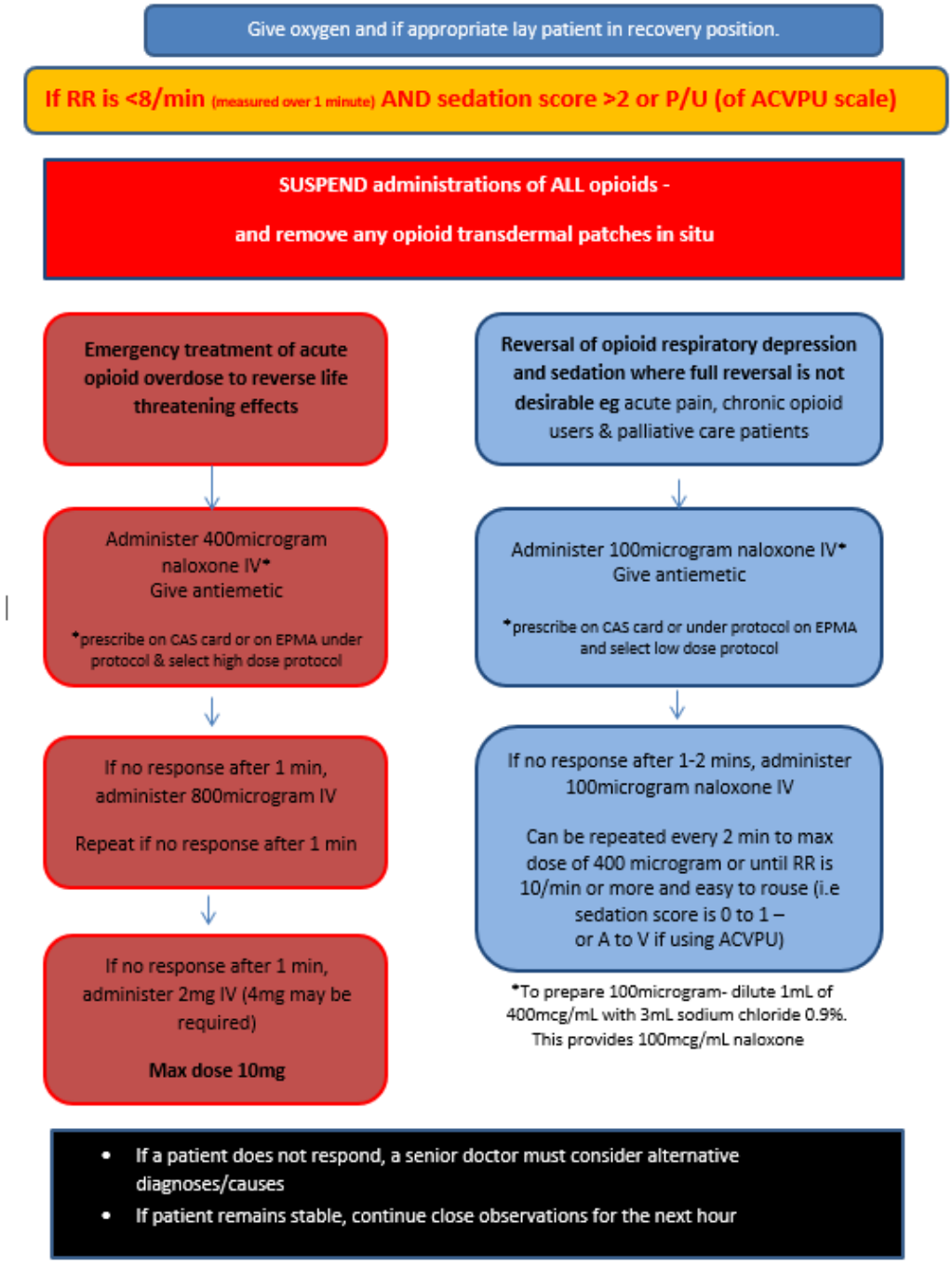
Naloxone will be available on all clinical areas for emergency use where opioids are used

References:

NHS/PSA/W/2014/016R: Stage One: Warning Risk of distress and death from inappropriate doses of naloxone in patients on long-term opioid/opiate treatment

NHS/PSA/Re/2015/009 : Stage Two: Resources
Support to minimise the risk of distress and death from inappropriate doses of naloxone

Naloxone Hydrochloride Administration Pathway for Adults



I Bateman/N Attaway/W Caddye/N Burns v2 June 2022

Naloxone infusion

A continuous infusion of naloxone may be required in acute opioid overdose where repeated IV doses are required or where one of the longer acting opioids e.g. MR preparations, epidural opioids, patches, methadone or opioids with high receptor affinity e.g. buprenorphine (not fully reversible by naloxone) is known or suspected to be the cause of the symptoms.
The initial hourly rate is set at 60% of the bolus needed to obtain a response. The continuous infusion rate is then adjusted according to response. See table 1 below.

Preparation of 200 microgram/mL solution:

- Estimated infusion time <3 hours – 4mg (10 x 400 microgram amps) made up to 20mL with sodium chloride 0.9% or dextrose 5% (200 microgram/mL) and given via and infusion pump.
- Estimated infusion time >3 hours – 10mg (25 x 400 microgram amps) made up to 50mL with sodium chloride 0.9% or dextrose 5% (200 microgram/mL) and given via an infusion pump.

Naloxone infusion should preferably be given by a central venous access device to avoid potential venous irritation due to low pH. If access unavailable, can be given peripherally but preferably via a large vein.

Once diluted, naloxone solutions should be used within 24 hours.

Table 1

Initial bolus dose giving response	Initial hourly rate of infusion	Volume per hour (200 micrograms/mL solution)
400 microgram	240 microgram / hour	1.2mL/hour
600 microgram	360 microgram / hour	1.8mL/hour
800 microgram	480 microgram / hour	2.4 mL/hour
1000 microgram	600 microgram / hour	3.0 mL/hour
1200 microgram	720 microgram / hour	3.6 mL/hour
1400 microgram	840 microgram / hour	4.2 mL/hour
1600 microgram	960 microgram / hour	4.8 mL/hour
1800 microgram	1080 microgram / hour	5.4 mL/hour
2000 microgram	1200 microgram / hour	6.0 mL/hour