Dexmedetomidine INTRAVENOUS for Adults

Who can administer

Administration RESTRICTED - see Appendix 1

Important information

- **Doses in excess of the licensed maximum of 1.4microgram/kg/hour must also be authorised by consultant**.
- **AVOID** a loading dose in ICU sedation (increased adverse reactions)
- The **RCT SPICE III** (ventilated adult ICU patients) found an increased risk of mortality with dexmedetomidine in those aged 65 years or younger compared to usual standard of care.
- There is no experience with use of this drug **for longer than 14 days**
- **Contraindicated:** acute cerebrovascular conditions, heart-block Grade II or III unless paced. See SPC for full list of contraindications
- Withdrawal symptoms (e.g., hypertension, tachycardia, delirium, agitation) may be more likely to occur in patients with a history of hypertension or those receiving drug for longer durations, with greater cumulative daily doses (e.g. >0.5mcg/kg/hr). In such patients, avoid abrupt discontinuation[ref 2)]
- For Y-site compatibility see below

Available preparations

Dexmedetomidine (EVER) 1000 micrograms/10mLvial **(for use in Critical Care only)**
Dexmedetomidine (EVER) 200 micrograms/2mL **(for use in Theatres only)**

Reconstitution

Already in solution

Infusion fluids

Sodium chloride 0.9% or Glucose 5%

Methods of intravenous administration

Critical care

- Add 5**mL** (500 micrograms) to 45**mL** of diluent (final concentration of **10micrograms/ml**) [ref 1)]

Theatres

- Add **2mL** (200 micrograms) to 48mL of diluent (final concentration of **4micrograms/ml**)

Concentrations above 4microgram/ml: administer via a large vein or preferably through a dedicated port of a central line [ref 1]

Dose in adults

A: Critical care

A1. Starting dose

- 0.7microgram/kg/**hour** - but frail patients may require lower starting doses

A2. Maintenance dose

- Normally 0.2 to 1.4microgram/kg/**hour**
- After dose adjustment, a new steady state sedation level may not be reached for up to one hour

Critical care ONLY: Dexmedetomidine 500microgram in 50ml: flow rates in ml/hour

Dose (micrograms/kg/hour)	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**	**1.1**	**1.2**	**1.3**	**1.4**
Weight (kg)													
35kg	0.7	1.1	1.4	1.8	2.1	2.5	2.8	3.2	3.5	3.9	4.2	4.6	4.9
40kg	0.8	1.2	1.6	2	2.4	2.8	3.2	3.6	4	4.4	4.8	5.2	5.6
45kg	0.9	1.4	1.8	2.3	2.7	3.2	3.6	4.1	4.5	5	5.4	5.9	6.3
50kg	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7
55kg	1.1	1.7	2.2	2.8	3.3	3.9	4.4	5	5.5	6.1	6.6	7.2	7.7
60kg	1.2	1.8	2.4	3	3.6	4.2	4.8	5.4	6	6.6	7.2	7.8	8.4
65kg	1.3	2	2.6	3.3	3.9	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.1
70kg	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7	7.7	8.4	9.1	9.8
75kg	1.5	2.3	3	3.8	4.5	5.3	6	6.8	7.5	8.3	9	9.8	10.5
80kg	1.6	2.4	3.2	4	4.8	5.6	6.4	7.2	8	8.8	9.6	10.4	11.2
85kg	1.7	2.6	3.4	4.3	5.1	6	6.8	7.7	8.5	9.4	10.2	11.1	11.9
90kg	1.8	2.7	3.6	4.5	5.4	6.3	7.2	8.1	9	9.9	10.8	11.7	12.6
95kg	1.9	2.9	3.8	4.8	5.7	6.7	7.6	8.6	9.5	10.5	11.4	12.4	13.3
100kg	2	3	4	5	6	7	8	9	10	11	12	13	14
105kg	2.1	3.2	4.2	5.3	6.3	7.4	8.4	9.5	10.5	11.6	12.6	13.7	14.7
110kg	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11	12.1	13.2	14.3	15.4
115kg	2.3	3.5	4.6	5.8	6.9	8.1	9.2	10.4	11.5	12.7	13.8	15	16.1
120kg	2.4	3.6	4.8	6	7.2	8.4	9.6	10.8	12	13.2	14.4	15.6	16.8

B. Theatres

B1. Initiation of procedural/awake sedation

- Give a loading infusion of 1microgram/kg **over 10 minutes**
- For less invasive procedures e.g. ophthalmic surgery give 0.5 micrograms/kg **over 10 minutes**

B2. Maintenance of procedural/awake sedation

- The maintenance infusion is usually started at 0.6 microgram/kg/**hour**
- Titrate to desired clinical effect with doses ranging from 0.2 to 1 microgram/kg/**hour**
- Adjust the rate of the maintenance infusion to achieve the targeted level of sedation

Theatre USE ONLY: Dexmedetomidine 200microgram in 50ml: flow rates in ml/hour

Dose (micrograms/kg/hour)	Initial maintenance dose (0.6mcg/kg/hour)	Lower end of dosing range (0.2mcg/kg/hour)	Higher end of dosing range (1 mcg/kg/hour)
Weight (kg)			
30kg	4.5	1.5	7.5
40kg	6	2	10
50kg	7.5	2.5	12.5
60kg	9	3	15
70kg	10.5	3.5	17.5
80kg	12	4	20
90kg	13.5	4.5	22.5
100kg	15	5	25
110kg	16.5	5.5	27.5
120kg	18	6	30

Hepatic impairment

- Use with caution. Lower doses may be required

Monitoring

- Specialist monitoring required
- If concentrations above 4microgram/ml are being used, monitor the area distal to the infusion for evidence of irritation [(ref 1)]

Further information

- An unlicensed concentration of **10microgram/ml** is being used on the intensive care unit for safety and pharmacoeconomic reasons.Â Evidence supporting this higher concentration is limited [(ref 1)]

Storage

Store below 25^{0}C

References

SPC Dexmedetomidine (EVER) Pharma 100mcg/ml concentrate 24/07/2023

1. An unlicensed concentration of 10 microgram/mL is being used in critical care. Its use is based on local practice and perceived safety and pharmacoeconomic benefits; however, evidence supporting this higher concentration is limited. "Infusion concentration information". Emails

on file
2. UpToDate, accessed online 06/08/2026
3. Written communication from Dr Patrick Neligan Jan 21 2015 and November 7 2018

Therapeutic classification

Selective alpha-2 receptor agonist

BNF
CNS