

Guideline for the use of Dexmedetomidine in Critical Care

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Approved by:	Medicines Safety Committee
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Key Amendments

Date	Amendment	Approved by
15 th January 2020	New document approved	Medicines Safety Committee

Introduction

Dexmedetomidine is a selective alpha-2 adrenoceptor agonist with sedative and analgesic properties. It is to be used only when conventional sedation (propofol, remifentanyl, clonidine) fail to adequately manage patients to the desired sedation (RASS) score or in patients with agitation or delirium where weaning off sedation with the aim to extubate has proven difficult.

Details of Guideline

Consultant initiation only. Maximum duration of use is 5 days

Dosage and Administration:

Intravenous infusion at a rate of: 0.2-1.4 micrograms/kg/hour

See flow chart below.

Start at 0.7 microgram/kg/hour for 1 hour then titrate by increments of 0.1 to 0.2 microgram/kg/hour every hour to achieve light sedation. (see below for patients with hepatic impairment).

Do NOT bolus

Two hours after starting infusion, wean down or cease other sedative agents.

Dilute 200micrograms (2ml) to 50ml (4micrograms/ml)

For high rates of infusion where less frequent changes are required, dilute 400micrograms to 100ml.

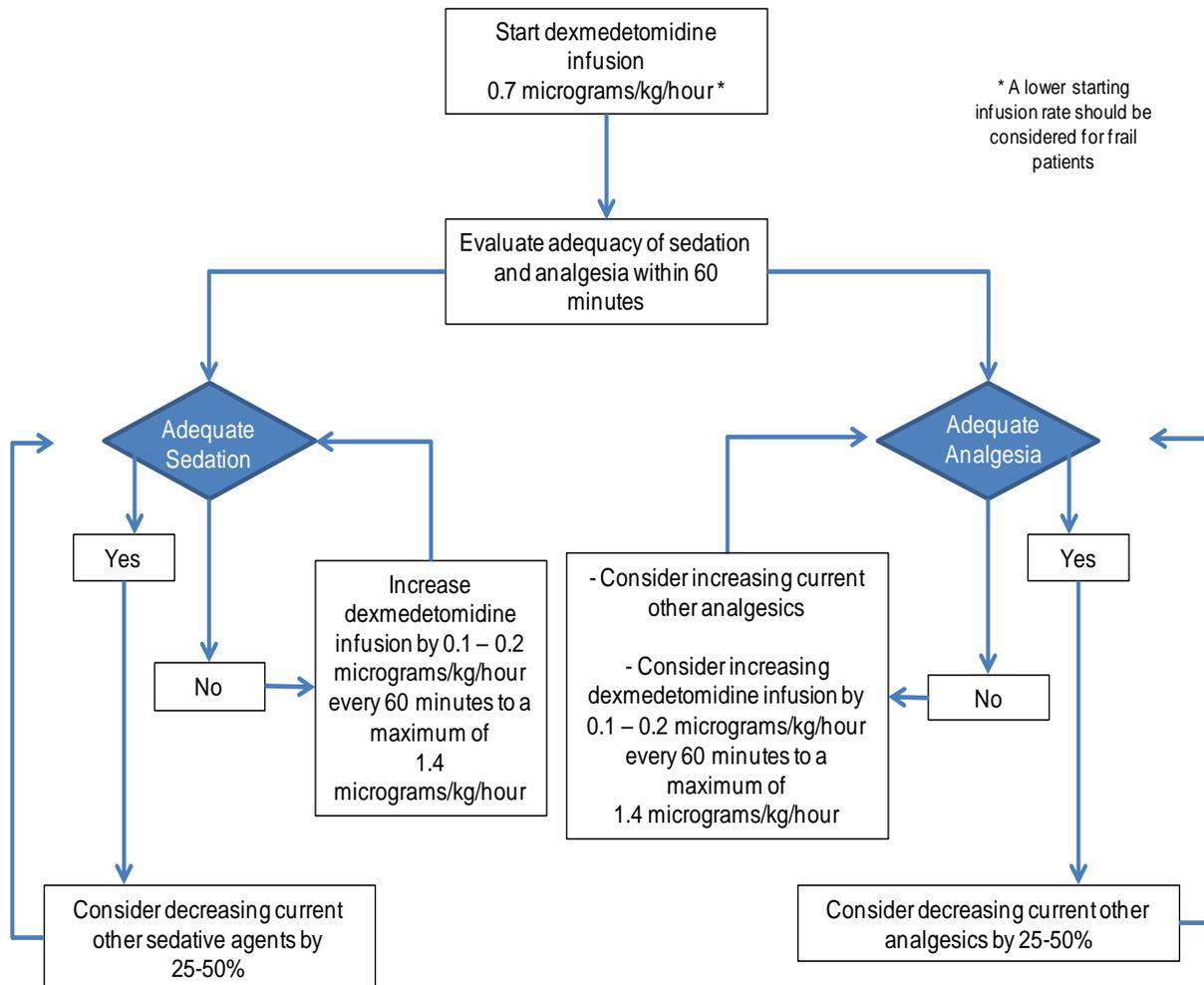
Infusion Fluid: Sodium Chloride 0.9% or glucose 5%

Side-effects: Hypotension (common) and bradycardia (reduce rate or stop infusion)
Myocardial ischaemia or infarction
Nausea and vomiting
Hypoglycaemia and hyperglycaemia.

Contraindications: Heart block
Uncontrolled hypotension
Acute cerebrovascular conditions

Pregnancy or breastfeeding
Age <18 years

Pharmacokinetics: Extensively metabolized by the liver to inactive metabolites.
Onset of effect 15 minutes, peak affect within 1 hour.
Elimination $t_{1/2}$ ~2 hours.
No dosage adjustment necessary in renal impairment. No data for renal replacement.



For patients with hepatic impairment, use a reduced starting dose of 0.4micrograms/kg/hour.

Maintenance infusion rate (ml/hr) of 4microgram/ml solution											
Desired dose (mcg/kg/hr)	Patient weight (kg)										
	40	45	50	55	60	65	70	75	80	85	90
0.2	2	2.3	2.5	2.8	3	3.3	3.5	3.8	4	4.3	4.5
0.4	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9
0.6	6	6.8	7.5	8.3	9	9.8	10.5	11.3	12	12.8	13.5
0.7	7	7.9	8.8	9.7	10.5	11.4	12.3	13.1	14	14.9	15.8
0.8	8	9.0	10	11	12	13	14	15	16	17	18
1.0	10	11.3	12.5	13.8	15	16.3	17.5	18.8	20	21.3	22.5
1.2	12	13.5	15	16.5	18	19.5	21	22.5	24	25.5	27
1.4	14	15.8	17.5	19.3	21	22.8	24.5	26.3	28	29.8	31.5

Monitoring Tool

This should include realistic goals, timeframes and measurable outcomes.

How will monitoring be carried out?

Who will monitor compliance with the guideline?

Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: <i>(Responsible for also ensuring actions are developed to address any areas of non-compliance)</i>	Frequency of reporting:
WHAT?	HOW?	WHEN?	WHO?	WHERE?	WHEN?
Dexmedetomidine used only when conventional sedation fails to adequately manage patients to the desired sedation (RASS) score or in patients with agitation or delirium where weaning off sedation with the aim to extubate has proven difficult.	Regular review	On daily WR	Consultant anaesthetists ICU Pharmacists	ICU forum	Annually.

References

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Contribution List

This key document has been circulated to the following individuals for consultation;

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This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee
ICU Forum
Anaesthetic and Critical Care Directorate Governance Committee