Worcestershire Acute Hospitals NHS Trust

Guideline for the use of Dexmedetomidine in Critical Care

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Key Document Owner:	Keith Hinton Clinical Team Lead Pharmacist, Critical Care
Approved by:	*ICM Forum*
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Date of review:	*24th January 2027*

Key Amendments

Date	Amendment	Approved by
28th January 2021	New document approved	Medicines Safety Committee
24th January 2024	Document reviewed and re-published without changes	ICM Forum
31st January 2024	Correction to date for 'New document approved' in this table	Clinical Effectiveness

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.

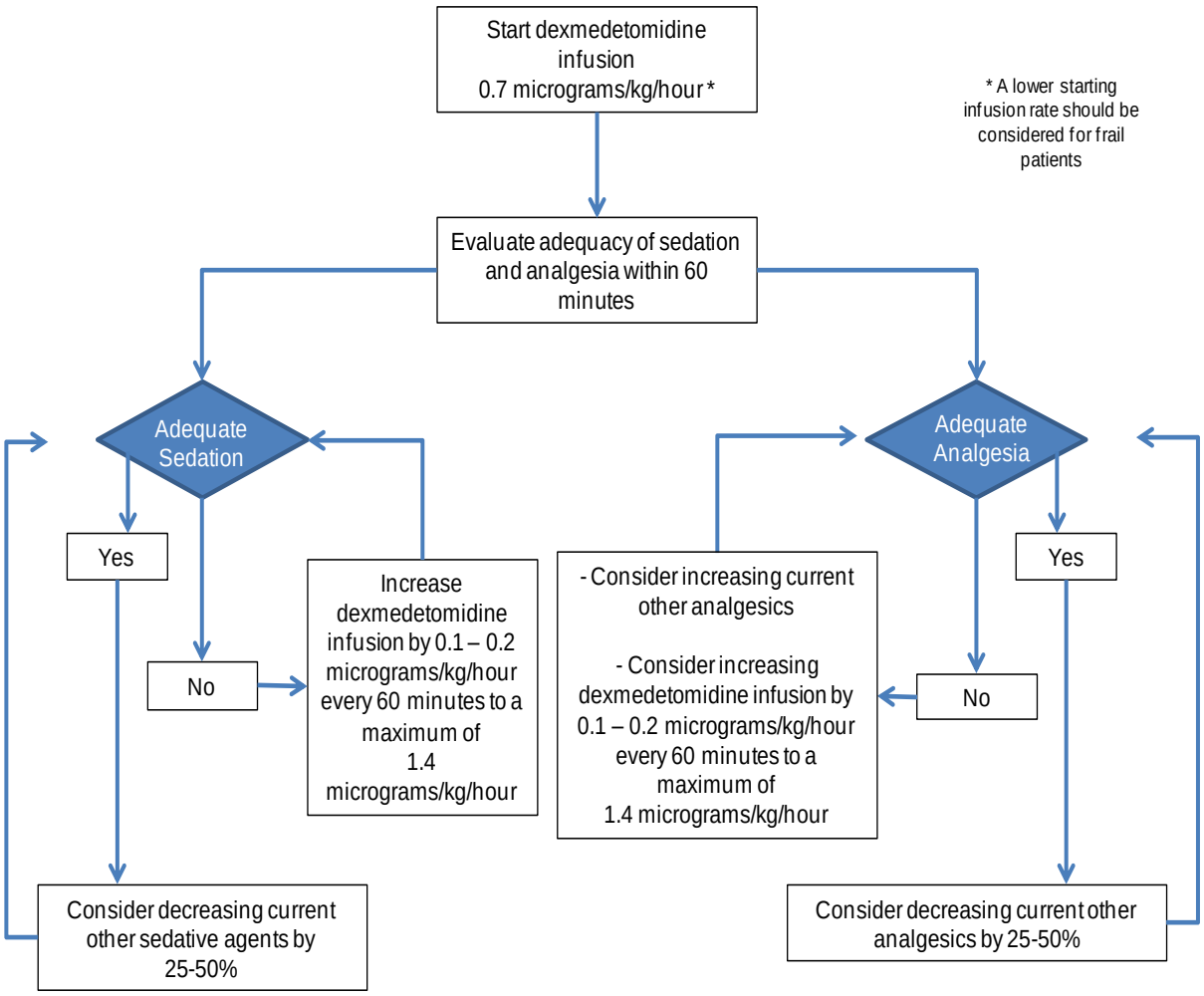
Infusion Fluid: Sodium Chloride 0.9% or glucose 5%

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: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	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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- Electronic Medicines Compendium. Datapharm Publications Ltd. London. www.emc.medicines.org.uk accessed 19/1/19
- Medusa Injectable Drug Administration Guide. Available online. Worcestershire Trust Intranet. Accessed 19/1/19

Contribution List

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

Designation	
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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