Belfast Health and Social Care Trust
caring supporting improving together

Reference No: SG 19/19

Title:	**Dexmedetomidine Premedication in Children aged 1-18 years, undergoing General Anaesthesia in BHSCT**		
Author(s)	Dr Rachel Copeland, Consultant Paediatric Anaesthetist, RBHSC Rachel.Copeland@belfasttrust.hscni.net Mrs Anne Burns, Lead Paediatric Clinical Pharmacist, RBHSC Tel: 028 90 634403 Anne.Burns@belfasttrust.hscni.net		
Ownership:	Mr Aidan Dawson, Specialist Hospitals and Women's Health Director		
Approval by:	Paediatric Drugs and Therapeutics Committee Trust Drugs and Therapeutics Committee Standards and Guidelines Committee Trust Policy Committee Executive Team Meeting	**Approval date:**	28/06/2019 05/07/2019 15/08/2019 03/10/2019 09/10/2019
Operational Date:	October 2019	**Next Review:**	October 2024
Version No.	1	**Supersedes**	None
Key words:	Premedication, dexmedetomidine, anxiolysis		
Links to other policies	BHSCT Hospital Medicines Code (March 2017) http://intranet.belfasttrust.local/policies/Documents/MedicinesCode.pdf		

Date	Version	Author	Comments
03/02/2019	0.1	R Copeland A Burns	Initial draft
21/03/2019	0.2	R Copeland A Burns	Second draft incorporating changes suggested by Carolyn Neill, Quality Co-ordinator
15/05/2019	0.3	R Copeland A Burns	Third draft incorporating changes suggested by D&T Committee RBHSC
01/07/2019	0.4	R Copeland A Burns	Fourth draft incorporating further changes suggested by D&T Committee RBHSC
10/07/2019	0.5	R Copeland A Burns	Fifth draft incorporating further changes suggested by BHSCT D&T Committee

1.0 INTRODUCTION / PURPOSE OF GUIDELINE

1.1 Background

Children are often frightened and become uncooperative during induction of anaesthesia. It has been reported that more than 40% of children aged 2-10 years display some distress behaviour during induction of anaesthesia and that more than 30% resist anaesthetists during induction(1). This can then lead to postoperative behavioural problems[2]. Therefore, using adequate premedication to provide anxiolysis may be beneficial to facilitate induction of anaesthesia and improve postoperative course.

Midazolam, a benzodiazepine, is currently the main pre-medication used for children in the Belfast Health and Social Care Trust. Advantages of it include rapid onset, anterograde amnesia and anxiolysis. However, undesirable effects include paradoxical hyperactive reactions, and in some cases it is ineffective[3].

Dexmedetomidine is a potent, highly specific alpha 2-adrenoceptor agonist that has both sedative and analgesic effects. It has become increasingly popular for premedication in children because it does not cause respiratory depression and can be administered via different routes, such as intranasal[4]. A meta-analysis of randomised controlled trials demonstrated that dexmedetomidine is superior to midazolam in terms of producing satisfactory sedation upon parental separation and mask acceptance[1].

Therefore, this guideline aims to give an additional / alternative choice of anxiolytic medication to the anaesthetist looking after anxious children and therefore improve the quality of care preoperatively for distressed children prior to anaesthesia.

1.2 Purpose

- To provide an alternative anxiolytic for patients with a history of poor response or paradoxical reaction to midazolam.

- To provide guidance to staff in the Belfast Health and Social Care Trust (BHSCT) on safe prescribing and administration of dexmedetomidine as premedication.

1.2 Objectives

To provide effective preoperative anxiolysis for distressed children using dexmedetomidine, as an alternative to midazolam.

2.0 SCOPE OF THE POLICY

For all anaesthetic and nursing staff in BHSCT using dexmedetomidine as a premedication for anxious children aged 1- 18 years prior to anaesthesia. NB: Initial use will be limited to RBHSC, with outcomes audited.

3.0 ROLES/RESPONSIBILITIES

- **Pharmacy**
  - Provision of dexmedetomidine 200 microgram/2mL ampoules.
- **Anaesthetic Staff**
  - Comply with this guidance.
  - Be competent in the detection and management of known side effects of dexmedetomidine.
  - Dexmedetomidine used as premedication in accordance with this guideline should be prescribed by an anaesthetist.
- **Pre-operative ward staff**
  - Provision of MAD Nasal ™ device (Mucosal Atomiser Device)
  - Competence in the use of the MAD Nasal ™ device.

4.0 KEY POLICY PRINCIPLES

4.1 Definitions

Dexmedetomidine: A highly specific α2-adrenoceptor agonist**.**

4.2 Key Policy Statement(s)

To provide safe and effective guidance on the use of dexmedetomidine as premedication in anxious paediatric patients.

4.3 Policy Principles

- **Indication**
  When anxiolysis premedication is required for distressed / potentially distressed children with a history of poor response or paradoxical reaction to midazolam.
- **Presentation**
  Available as 200 microgram/2mL ampoule

- **Dosage Information**

  Intra-nasal or buccal

  Age range: 1 – 18 years.
  Premedication dose: 2 microgram/kg/dose (Range 1 - 4 microgram/kg/dose, maximum 200 micrograms)[6].

- **Administration**

  Intra-nasal

  - First line route of administration is intranasal, using the MAD Nasal ™ device (see Appendix 1)
  - Time of Onset: 25 minutes after administration
  - Duration of Action: 40-135 minutes (depending on dose used)

  Use the buccal route if intranasal not possible[6].

- **Contraindications**

  - Advance heart block (Grade 2 or 3 unless paced)
  - Patients with significant impaired ventricular function or cardiovascular instability
  - Patients on digoxin
  - Uncontrolled hypertension
  - Acute cerebrovascular conditions
  - Severe hepatic failure

- **Monitoring of the patient**

  Following administration of the dexmedetomidine, the child should remain in their bed before going to theatre, and should be observed by a responsible adult (parent/ carer/ staff).

- **Co-premedication with midazolam**

  This is at the discretion of the consultant anaesthetist.

- **Side effects**

  - Bradycardia
  - Dose dependent reduction in gastrointestinal tract transit times (less than morphine)
  - Diminished shivering
  - Potential for hypoglycaemia.

- **Overdose**
  Overdose has been described and is associated with transient hypertension and prolonged sedation, but notably without respiratory depression[4].

5.0 IMPLEMENTATION OF POLICY

5.1 Dissemination

This policy is intended for all medical and nursing staff in the BHSCT involved in the preoperative management of children having a general anaesthetic. Groups include:

- Paediatric Anaesthetic Consultants
- Anaesthetic Speciality Trainees
- Nursing staff on the preoperative wards.

The author, Dr Rachel Copeland, should be informed of any concerns regarding implementation of this policy.

5.2 Resources

All nursing staff administering dexmedetomidine will be up to date in their "Administration of Medicines" training, and been trained in the use of the MAD Nasal ™ device.

Awareness of this policy raised with the Paediatric Anaesthetic Consultants and trainees.

5.3 Exceptions

There are no areas of BHSCT exempt from this policy.

6.0 MONITORING

Audit of preoperative dexmedetomidine to be carried out after 1 year of use *by the author.*

7.0 EVIDENCE BASE / REFERENCES

1. Sun Y, Lu Y, Huang Y & Jiang H (2014). Is dexmedetomidine superior to midazolam as a premedication in children? A meta-analysis of randomized controlled trials. *Pediatric Anesthesia 24 (8) 863-874*

2. Watson A & Visram A. (2003) Children's preoperative anxiety and postoperative behaviour. *Paediatric Anaesthesia 13(3): 188-204*

3. Kain ZN et al. (2000). Midazolam: effects on amnesia and anxiety in children. *Anesthesiology 93(3): 676-684.*

4. Roberts M & Stuart G (2013). Dexmedetomidine in Paediatric Anaesthesia and Intensive Care. *Anaesthesia Tutorial of the Week, 293.*

5. Stuart G & Ooi K (2016). Dexmedetomidine Intranasal or Buccal As Premedication for Day of Surgery Patients. Great Ormond Street Hospital. Version 2.

6. Mathers J, Wilson C, Hume-Smith H & Ooi K (2018). Premedication in children undergoing general anaesthesia. Great Ormond Street Hospital. Version 3.

8.0 CONSULTATION PROCESS

- Paediatric Anaesthetic Consultants and trainees
- Paediatric Intensivists
- RBHSC Ward Sisters

9.0 APPENDICES / ATTACHMENTS

Appendix 1 Intranasal MAD Device images

10.0 EQUALITY STATEMENT

The Trust has legal responsibilities in terms of equality (Section 75 of the Northern Ireland Act 1998), disability discrimination and human rights to undertake a screening exercise to ascertain if this policy/proposal has potential impact and if it should be subject to a full impact assessment. This process is the responsibility of the policy or service lead - the template and guidance are available on the Belfast Trust Intranet. Colleagues in Equality and Planning can provide assistance or support.
The outcome of the Equality screening for this policy is:

No impact ☒

11.0 DATA PROTECTION IMPACT ASSESSMENT

New activities that involve collecting and using personal data can result in privacy risks. In line with requirements of the General Data Protection Regulation (GDPR) and the Data Protection Act 2018 the Trust has to consider the impacts on the privacy of individuals and ways to mitigate against the risks. Where relevant an initial screening exercise should be carried out to ascertain if this policy should be subject to a full impact assessment (see Appendix 7). The guidance for conducting a Data Protection Impact Assessments (DPIA) can be found via this **link.**
The outcome of the DPIA screening for this policy is:

Not necessary – no personal data involved ☒

If a full impact assessment is required the author (Project Manager or lead person) should go ahead and begin the process. Colleagues in the Information Governance Team will provide assistance where necessary.

12.0 RURAL IMPACT ASSESSMENTS

From June 2018 the Trust has a legal responsibility to have due regard to rural needs when developing, adopting, implementing or revising policies, strategies and plans, and when designing and delivering public services. It is your responsibility as policy or service lead to consider the impact of your proposal on people in rural areas – you will need to refer to the shortened rural needs assessment template and summary guidance on the Belfast Trust Intranet. Each Directorate/Division has a Rural Needs Champion who can provide support/assistance in this regard if necessary.

13.0 REASONABLE ADJUSTMENTS ASSESSMENT

Under the Disability Discrimination Act 1995 (as amended), the Trust has a duty to make reasonable adjustments to ensure any barriers disabled people face in gaining and remaining in employment and in accessing and using goods and services are removed or reduced. It is therefore recommended the policy explicitly references "reasonable adjustments will be considered for people who are disabled - whether as service users, visitors or employees.

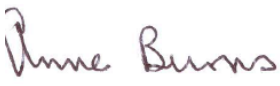
SIGNATORIES

(Policy – Guidance should be signed off by the author of the policy and the identified responsible Director).

03/10/2019

_____ **Date:** _____

Author



03/10/2019

_____ **Date:** _____

Author

03/10/2019

_____ **Date:** _____

Director

Appendix 1

LMA MAD Nasal™

Intranasal Mucosal Atomisation Device

Picture of Mad Nasal Device without syringe

Picture of Mad Nasal Device with syringe attached