

# Clinical Guideline



**HNEkidshealth**  
Children, Young People & Families



**Health**  
Hunter New England  
Local Health District

## Education Framework for Paediatric Sedation Administration

**Sites where Clinical Guideline applies** All HNE LHD Facilities

**This Clinical Guideline applies to:**

- |                                 |     |
|---------------------------------|-----|
| 1. Adults                       | No  |
| 2. Children up to 16 years      | Yes |
| 3. Neonates – less than 29 days | No  |

**Target audience** All clinicians who administer, assist with, and monitor paediatric patients who receive procedural sedation in HNE LHD.

**Description** This guideline provides an education framework, to enable clinical managers/educators to develop an education and credentialing program for clinical staff involved in paediatric procedural sedation. This framework is consistent with the requirements outlined in GL2018\_011.

[\*\*Go to Guideline\*\*](#)

**Keywords** Paediatric, procedural, sedation, framework

**Document registration number** HNELHD CG 19\_30

**Replaces existing document?** No

**Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:**

- GL2018\_011 ‘Paediatric Procedural Sedation – Guide for Emergency Departments, Wards, Clinics and Imaging.’ [https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018\\_011.pdf](https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018_011.pdf)
- 2014, PS09. Australian and New Zealand College of Anaesthetists (ANZCA) ‘Guideline on Sedation and/or Analgesia for Diagnostic and Interventional, Dental or Surgical Procedures’. <https://www.anzca.edu.au/documents/ps09-2014-guidelines-on-sedation-and-or-analgesia>
- GL2017-010 ‘NSW Paediatric Service Capability Framework.’
- JHH\_JHCH\_BH\_0248: ‘Procedural Sedation Credentialing in Emergency Department.’
- JHH\_JHCH\_0126: ‘Nitrous oxide procedural sedation in paediatrics.’
- PD2017-032: PCP 2 ‘Clinical Procedural Safety (Levels 1, 2 and 3).’

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Note: Over time links in this document may cease working. Where this occurs please source the document in the PPG Directory at: <http://ppg.hne.health.nsw.gov.au/>

## PURPOSE AND RISKS

This education framework outlines the minimum education and credentialing requirements for clinicians who prescribe, deliver, monitor and care for paediatric patients during procedural sedation episodes.

The risks include:

- Unintended harm caused by the administration of sedation drugs
- Inadequate monitoring or inadequate airway protection
- Clinician knowledge deficit of procedural sedation in the paediatric patient.

The risks are minimised by:

All clinical staff having completed approved procedural sedation education and credentialing.

An education and credentialing program that covers recognition of potential risks associated with sedation drug selection and administration, site specific equipment and safe patient monitoring.

Education that outlines the importance of accurate clinical documentation, including the correct use of the 'Paediatric Procedural Sedation Checklist for Emergency Departments, Wards, Clinics and Imaging.'

Risk Category: Clinical Care & Patient Safety

## GLOSSARY

Acronym or Term	Definition
Analgesia	A reduction or elimination of pain perception, usually induced by drugs that act locally or generally. May be achieved by Nitrous oxide.
Deeper sedation	Depression of consciousness that can readily progress to a point where consciousness is lost and patients respond only to painful stimuli, associated with loss of the ability to maintain a patent airway. Has similar risks to general anaesthesia requiring equivalent levels of care. May be achieved with Nitrous oxide and midazolam/oral opioids/intranasal fentanyl.
Conscious sedation	A drug induced depression of consciousness during which patients are able to respond purposefully to verbal commands or light tactile stimulation.
ECI	Emergency Care Institute.
Procedural sedation and/or analgesia	The patient is in a state of drug-induced tolerance of painful and/or uncomfortable procedures. Lack of memory of distressing events and/or analgesia may be desired outcomes, lack of response to painful stimuli is not assured.

(Reference: GL2018\_011 and 2014 ANZCA PS09).

## **GUIDELINE**

Compliance with this guideline is mandatory.

This education framework must be read in conjunction with GL2018\_011 'Paediatric Procedural Sedation – Guide for Emergency Departments, Wards, Clinics and Imaging.'

[https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018\\_011.pdf](https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018_011.pdf)

This document states that 'procedural sedation should only be used by medical and nursing staff who have appropriate training and where adequate equipment, facilities and staff are available.' It further states that:

'Clinicians who administer procedural sedation to patients must be competent in:

- Assessment of the child's airway, breathing and circulation.
- Assessment of the child's level of consciousness.
- Recognition and response to the deteriorating patient.
- Pain assessment and management.

.....Credentialing of clinical staff should include theoretical and practical components. LHDs/SHNs may develop credentialing processes for staff who perform procedural sedation.'

Appendix 1: 'HNE LHD Facility Capacity Self – Assessment Checklist' can be utilised by individual facilities to assess site preparedness and capacity to perform paediatric sedation events.

Outlined below is the education framework to satisfy minimal education and credentialing program requirements to be conducted across HNE LHD sites where episodes of paediatric procedural sedation are performed.

## **MANDATORY PROGRAM CONTENT**

This includes 'required pre-requisite', 'program content' including points 1, 2, 3 and 4 as described below.

## **REQUIRED PRE-REQUISITE**

DETECT junior completion PLUS current Resus4Kids (or equivalent) completion. This includes the demonstrated ability to assess the child's airway breathing, circulation and level of consciousness and the ability to recognise and respond to the deteriorating patient.

## **PROGRAM CONTENT**

1. For all staff EXCEPT JHCH staff, successful completion of the ECI sedation e-learning program, this includes the adult and paediatric components of this e-learning program, available at:  
<https://aci.moodlesite.pukunui.net/login/index.php>. See appendix 2 for further information about accessing this education and HNE LHD information to complete.
2. For JHCH staff ONLY successful completion of HNEKidshealth 'Paediatric Nitrous oxide Sedation' Learning Package, available at:  
[http://intranet.hne.health.nsw.gov.au/\\_data/assets/pdf\\_file/0007/179782/Nitrous\\_FINAL.pdf](http://intranet.hne.health.nsw.gov.au/_data/assets/pdf_file/0007/179782/Nitrous_FINAL.pdf)

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3. For ALL staff attendance at a one (1) hour facility specific, face to face education session. This education session must include:
  - Selection of patients suitable for sedation
  - Appropriate location of sedation episode within the facility identified
  - How informed consent is obtained and recorded
  - Pre procedure assessment, preparation and risk assessment
  - Monitoring during and post procedure
  - Safe medication selection and administration
  - Procedure for managing adverse events
  - Facility specific equipment for Nitrous oxide administration
  - Use of the ‘Paediatric Procedural Sedation Checklist for Emergency Departments, Wards, Clinics and Imaging.’ [https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018\\_011.pdf](https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018_011.pdf)
  - See appendix 1, in the above hyperlinked document.
4. For ALL staff, completion of three (3) participant practical skills demonstrations using site specific equipment and facilities, including equipment troubleshooting. This includes:
  - Two (2) supervised\* educational observations of a sedation episode or two (2) supervised\* demonstrations by the participant of a sedation episode using an infant/child mannequin. See appendix 3 for the two (2) scenarios to be used for the demonstration.

### **PLUS**

- One (1) supervised\* demonstration of a sedation episode, in the clinical environment, undertaken by the participant. If this is not possible then a third simulation scenario is to be completed. See appendix 4 for this scenario.

\* supervised means education supervision by a Clinical Nurse Educator (CNE) / Nurse Educator (NE) or a person designated by a CNE / NE.

## **OPTIONAL PROGRAM CONTENT (IF ADDITIONAL LEARNING DESIRED/REQUIRED).**

1. Successful completion of HNEKidshealth ‘Paediatric Acute Pain Management using Opioids’ Learning Package, available at:  
[http://intranet.hne.health.nsw.gov.au/\\_data/assets/pdf\\_file/0005/177143/Paediatric\\_Acute\\_Pain\\_Management\\_using\\_Opioids.pdf](http://intranet.hne.health.nsw.gov.au/_data/assets/pdf_file/0005/177143/Paediatric_Acute_Pain_Management_using_Opioids.pdf)
2. Successful completion of HNEKidshealth ‘Paediatric Nitrous oxide Sedation’ Learning Package, available at:  
[http://intranet.hne.health.nsw.gov.au/\\_data/assets/pdf\\_file/0007/179782/Nitrous\\_FINAL.pdf](http://intranet.hne.health.nsw.gov.au/_data/assets/pdf_file/0007/179782/Nitrous_FINAL.pdf)
3. Review the sedation resources located on the ECI website located at:  
<https://www.aci.health.nsw.gov.au/networks/eci/clinical/clinical-resources/clinical-tools/procedural-sedation-ed>
4. Completion of HNE LHD Simulation program ‘Managing the complications of sedation in paediatric practice.’ Information available at: <http://www.hnehealth.nsw.gov.au/HNESC/Pages/HNE-Simulation-Centre.aspx>

## **PROGRAM FREQUENCY**

After completion of the HNE LHD paediatric sedation education program:

If the participant has not undertaken an actual sedation episode in the clinical environment within 12 months of completing the education program, it is strongly recommended, two (2) sedation simulation scenarios are undertaken yearly (see appendix 2).

### **ADDITIONAL RESOURCE IF REQUIRED:**

JHCH 'Nitrous Oxide Procedural Sedation in Paediatrics' 2017 PPP. Available from the Nurse Educator John Hunter Children's Hospital.

You Tube video, Royal Children's Hospital Melbourne, 'A child's guide to hospital: nitrous oxide.'

<https://www.youtube.com/watch?v=Av-xnPeco3k>

### **IMPLEMENTATION, MONITORING COMPLIANCE AND AUDIT**

This document will be available on the Policy, Procedure and Guideline Directory (PPG).

There is no need to audit this PCP as this is an education framework.

Related IIMs will be investigated.

### **REFERENCES**

2014, PS09. Australian and New Zealand College of Anaesthetists (ANZCA) 'Guideline on Sedation and/or Analgesia for Diagnostic and Interventional, Dental or Surgical Procedures'.

<https://www.anzca.edu.au/documents/ps09-2014-guidelines-on-sedation-and-or-analgesia>

GL2018\_011 'Paediatric Procedural Sedation – Guide for Emergency Departments, Wards, Clinics and Imaging. [https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018\\_011.pdf](https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018_011.pdf)

### **FEEDBACK**

Any feedback on this document should be sent to the Contact Officer listed on the front page.

## APPENDIX 1: HNE LHD FACILITY CAPACITY SELF - ASSESSMENT CHECKLIST

### **Paediatric Procedural Sedation (GL2018\_011)** **HNE LHD Facility Capacity Self-Assessment Checklist**

Procedural sedation and/or analgesia: The patient is in a state of drug-induced tolerance of painful and/or uncomfortable procedures. Lack of memory of distressing events and/or analgesia may be desired outcomes, lack of response to painful stimuli is not assured.

Conscious sedation: A drug induced depression of consciousness during which patients are able to respond purposefully to verbal commands or light tactile stimulation.

Analgesia: A reduction or elimination of pain perception, usually induced by drugs that act locally or generally. May be achieved by Nitrous Oxide.

Deeper sedation: Depression of consciousness that can readily progress to a point where consciousness is lost and patients respond only to painful stimuli, associated with loss of the ability to maintain a patent airway. Has similar risks to general anaesthesia requiring equivalent levels of care. May be achieved with Nitrous oxide and midazolam/oral opioids/intranasal fentanyl.  
(Reference: GL2018\_011 and 2014 ANZCA PS09).

<b>QUESTIONS</b>	<b>RESPONSES</b>
<b>CAPACITY:</b>	
1. Where does procedural sedation occur in this facility?	
1a. Who performs/administers this?	
1b. Who assists with this and what is their role and responsibilities?	
2. Where does conscious sedation occur in this facility?	
2a. Who performs/administers this?	
2b. Who assists with this and what is their role and responsibilities?	

3. Who undertakes the pre sedation assessment and preparation?	
3a. Who documents this in the clinical record?	
4. Is the 'Paediatric Procedural Sedation Checklist for Emergency Department, Wards, Clinics & Imaging used?	
4a. If no why not?	
<b>PROCEDURE:</b>	<b>RESPONSES</b>
5. What procedures requiring sedation are undertaken?	
5a. By whom?	
5b. What drugs are used?	
5c. By whom?	
6. What combination of drugs are used routinely?	
6a. By whom?	
<b>EQUIPMENT:</b>	<b>RESPONSES</b>
7. Does your facility have the equipment to administer nitrous oxide to paediatric patients?	
7a. If yes what circuit/device is used (ie: do you use entonox or nitrous oxide blending device)?	
7b. If you use a nitrous oxide blending device what concentration of nitrous oxide do you usually use?	
7c. Who currently administers nitrous oxide?	

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7d. What education and training in nitrous oxide administration do they have?	
8. Is there a paediatric CERS protocol in place?	
8a. If yes who will respond to this?	
8b. Where is this located?	
9. Is age appropriate resuscitation equipment available?	
9a. If yes where is it located?	
10. Do you have clinicians accredited for paediatric ALS on every shift?	
11. Where is the Naloxone located?	
11a. Do you have a prescribing guideline for Naloxone in children?	
<b>EDUCATION:</b>	<b>RESPONSES</b>
12. What staff training and education is undertaken by RN's for paediatric sedation?	
13. What staff training and education is undertaken by MO's for paediatric sedation?	
14. Do you have a clinician credentialing/education process documented for paediatric sedation?	
14a. Who performs this credentialing/education in your facility?	
14b. How often is this credentialing/education assessed?	

## APPENDIX 2: ECI E-LEARNING SEDATION MODULE ACCESS

### 1. Step 1. Create an Account

Go here <http://aci.moodlesite.pukunui.net/?redirect=0> and create an account. To activate follow the instructions in the email that you receive.

### 2. Step 2. Access the modules

Then go here <https://aci.moodlesite.pukunui.net/course/view.php?id=57>

To access any of the modules simply enter the key HNESED when asked.

You only have to enter the key once. This key is for HNE LHD participants and allows capture and recording of your course completion.

If you do not complete the module you can come back and finish it at a later date, the site remembers where you are up to.

You can print your certificate of completion on achieving 100% pass in the quiz.

The screenshot shows a Moodle course page titled "Sedation in the Emergency Department Use". The title is followed by the subtitle "HNESED as Key". A note states: "This presentation is an interactive module on sedation in the ED. It designed to be used by Institutions as part of their credentialing for clinicians who use procedural sedation in the ED." Below this, a note says: "Use HNESED as the key when asked or the one supplied to you." There are three activity items listed: "Sedation" (with a checkmark), "Paediatric Sedation" (with a checkmark), and "Quiz ( 20 mins)" (with a checkmark). A note below the activities says: "You need to get 100 % to pass, you must complete the presentation first." At the bottom, there is a section for a "Certificate for Sedation Core Knowledge" which is marked as "Restricted" and requires completion of the three activities listed above.

## APPENDIX 3: SCENARIO 1 AND 2

### SCENARIO 1:

Allegra a 6 year old girl presented to the Emergency Department at 10am, with a laceration to the sole of her left foot. Her mother reports, 1 hour ago, Allegra cut her foot whilst playing in the shallow water at the local river. Allegra is extremely distressed and anxious, crying and pleading for no needles. After review by the MO, the care plan is to administer nitrous oxide to Allegra whilst her laceration is being sutured. It is estimated that approximately 10 sutures will be required.

The following principles of care are to be discussed:

- Age appropriate pain assessment and documentation.
- Distraction techniques to be considered to minimise pain, fear and anxiety (e.g. 'TLC for Kids' distraction box)
- Pre sedation assessment and risk assessment including use of the 'Paediatric Procedural Sedation Checklist for Emergency Departments, Wards, Clinic and Imaging.'
- Consent
- Importance of an accurate documented medication order for nitrous oxide/entonox administration
- Psychological preparation for Allegra and her mother
- Equipment check for nitrous oxide/entonox administration and emergency equipment
- Contraindications and risks associated with nitrous oxide/entonox administration
- Members of the healthcare team and their roles and responsibilities
- Monitoring during the procedure
- Post procedure assessment and monitoring
- Response to adverse events or signs of clinical deterioration
- Documentation and discharge information

### ADDITIONAL EDUCATION RESOURCE:

Access the Nitrous Oxide Competency Standard on pages 28-30 in the HNEKidshealth 'Paediatric Nitrous oxide Sedation' Learning Package, available at:

[http://intranet.hne.health.nsw.gov.au/\\_data/assets/pdf\\_file/0007/179782/Nitrous\\_FINAL.pdf](http://intranet.hne.health.nsw.gov.au/_data/assets/pdf_file/0007/179782/Nitrous_FINAL.pdf)

**SCENARIO 2:**

Max is a 3 year old boy who presented to the Emergency Department with his parents at 10am. Max has a four day old burn wound on his lower left leg and requires a simple burns dressing to be attended.

Max is anxious and fearful. The care plan is to administer midazolam prior to the procedure. His parents administered an appropriate paracetamol dose prior to his presentation at 10am in preparation for the repeat burns wound dressing. Max weighs 18 kgs.

The following principles of care are to be discussed:

- Age appropriate pain assessment and documentation.
- Distraction techniques to be considered to minimise pain, fear and anxiety (eg. TLC distraction box)
- Pre sedation assessment and risk assessment including use of the 'Paediatric Procedural Sedation Checklist for Emergency Departments, Wards, Clinic and Imaging.'
- Consent
- Psychological preparation for Max and his parents
- Appropriate drug doses for buccal /intranasal midazolam administration, including desired route of administration
- Emergency equipment and drug reversal (flumazenil) information, dose and location
- Contraindications and risks associated with midazolam administration
- Members of the healthcare team and their roles and responsibilities
- Monitoring during the procedure
- Post procedure assessment and monitoring
- Response to adverse events or signs of clinical deterioration
- Documentation and discharge information

## **APPENDIX 4: SCENARIO 3**

Ella a 10 year old girl presented to the Emergency Department at 2pm with her mother. Ella has a swollen painful left wrist. Her mother reports, 'Ella tripped over at school onto an outstretched arm.' An X-ray has confirmed Ella has an un-displaced fracture of her left radius. Ella will have a POP applied whilst receiving nitrous oxide/entonox.

The following principles of care are to be discussed:

- Age appropriate pain assessment and documentation.
- Distraction techniques to be considered to minimise pain, fear and anxiety (e.g. TLC distraction box)
- Pre sedation assessment and risk assessment including use of the 'Paediatric Procedural Sedation Checklist for Emergency Departments, Wards, Clinic and Imaging.'
- Consent
- Importance of an accurate documented medication order for nitrous oxide/entonox administration
- Psychological preparation for Ella and her mother
- Equipment check for nitrous oxide/entonox administration and emergency equipment
- Contraindications and potential risks associated with nitrous oxide/entonox administration
- Members of the healthcare team and their roles and responsibilities
- Monitoring during the procedure, this includes, vital signs, pain assessment and sedation level

During the procedure Ella becomes a little excitable, she complains of dizziness, you observe her heart rate has increased and then she has a large vomit.

- Discuss assessment of clinical deterioration, clearing and maintaining a patent airway, suctioning the airway and maintaining optimal oxygenation
- Appropriate response to clinical change when nitrous oxide toxicity is observed
- Discuss adverse effects of nitrous oxide administration
- Response to clinical deterioration when unplanned sedation occurs
- Emergency equipment location and demonstrated familiarity with relevant resuscitation equipment
- Post procedure assessment and monitoring
- Documentation and discharge information

Additional education resource:

Access the Nitrous Oxide Competency Standard on pages 28-30 in the HNEKidshealth 'Paediatric Nitrous oxide Sedation' Learning Package, available at:

[http://intranet.hne.health.nsw.gov.au/\\_data/assets/pdf\\_file/0007/179782/Nitrous\\_FINAL.pdf](http://intranet.hne.health.nsw.gov.au/_data/assets/pdf_file/0007/179782/Nitrous_FINAL.pdf)