Learning Package | HNE**kids**health | NSW GOVERNMENT Health Hunter New England Local Health District

Paediatric Acute Pain Management using Opioids

Sites where Learning package applies	Paediatric wards across HNELHD
Description	This learning package is part of a suite of resources addressing the assessment and management of acute pain in infants, children and adolescents.
Target audience	Clinicians caring for a paediatric patients
Learning Outcomes, On completion of this package you will be better able to:	• Identify the resources available addressing the management of acute paediatric pain, and how to access them • Discuss the pharmacology of the commonly used opioids • Use the learning resources to assess and manage the acute pain of a paediatric patient.

Keywords	Paediatric, pain, PCA, NCA, opioid
Document registration number	LP18:03
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:

- National Standard 4 & 9
- NSW Health Policy Directive 2014_036 Clinical Procedure Safety
- NSW Health Policy PD 2005_406 Consent to Medical Treatment
- NSW Health Guideline GL2016_009 Infants and Children: Management of Acute and Procedural Pain in the Emergency Department.
- NSW Health Policy Directive PD 2017_013 Infection Prevention and Control Policy
- N.S.W. Health Policy Directive PD2013_043 Medication Handling in NSW Public Hospitals
- N.S.W. Health Policy Directive PD2016_058 User applied Labelling of Injectable Medicines, Fluids and Lines
- NSW Health PD2013_049 Recognition and Management of Patients who are Clinically Deteriorating
- NSW Health Safety Alert 001/17 HYDROmorphone
- JHCH Guideline 3.19 Recognition of the deteriorating paediatric patient in JHCH/JHH/RNC
- JHCH Guideline 13.33 Bowel Management for Opioid-induced Constipation
- HNELHD guideline and procedure GandP17_23. Intravenous Opioid, Patient-Controlled Analgesia Infusions – Regional Hospitals.
- JHCH Local Guideline 13.17. Intravenous opioid infusion (PCA or NCA or Continuous)

Is this package recorded in MHL?	Paediatrics: Paediatric Acute Pain Management using Opioids (177051588)
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Paediatrics: Paediatric Acute Pain Management using Opioids

Learning Package

2017

Learning Package Overview

Purpose: this learning package is designed to complement the local and district guidelines, and e-learning relating to the assessment and management of acute paediatric pain. It provides the learner with a pathway to access relevant resources, and a case study in which the learner can apply the relevant resources to a clinical scenario.

Reviewed & Updated by:

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Date for Learning Package Review: 2020

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DISCLAIMER

This learning package has been prepared by health professionals employed in Hunter New England Local Health District at the John Hunter Children's Hospital. While all care has been taken to ensure that the information is accurate at the time of development, the authors recommend that all information is thoroughly checked before use if utilised by another unit, context or organisation.

AIM

This package is part of a suite of resources which aims to provide the learner with the required knowledge to safely care for children receiving opioid analgesia. The learner is made aware of resources which can be accessed to assess and manage acute paediatric pain.

LEARNING OUTCOMES OR LEARNING OBJECTIVES

Completion of this learning package will enable the Registered or Enrolled nurse to demonstrate an understanding of the following:

- Principles of paediatric pain assessment
- Principles of paediatric pain management
- Pharmacology of commonly used opioid analgesia
- Resources available relating to paediatric pain.

Learning Package Outline
The package is designed to be a self-directed learning experience that will guide you through the literature and clinical issues related to paediatric acute pain management using opioid analgesia.

This package is developed within an adult learning framework so not all activities need to be documented but it is expected that you will complete them in order to facilitate your learning.

PROBLEM BASED LEARNING

This program is based on a problem-based approach to learning. This approach has been chosen to enhance critical thinking, and to create a body of knowledge that the RN can apply to practice. Problem based learning (PBL) is characterised by the use of patient specific problems or situations as a context for developing problem-solving skills and for acquiring clinical knowledge.

How to use this resource or Instructions for participants
This learning package contains links to e-learning available on My Health Learning. It is essential that these modules are completed as part of this package.
This package also contains links to relevant local and district policies. It is essential these policies are accessed in order to gain an understanding of the procedure involved in the administration of opioid analgesia.

Completion of this package is equivalent to 5 Continuing Professional Development (CPD) hours which is a requirement for National Registration. Evidence of CPD can be generated using the Reflection on learning page at the end of the template.

At the completion of this learning package you are asked to complete questions or a problem based scenario related to the topic.

There is a suggested reference list and it is by no means complete. Please read widely to facilitate your learning.

This resource has been written from a Hunter New England Area Local Health District perspective so it is not specific to any one health facility. Throughout the package procedures from the John Hunter Hospital have been mentioned as an example of practice only.

ASSESSMENT PROCESS

When completed, you can return the package to relevant nurse educator/ CNS/CNC who will discuss it with you.

INTRODUCTION

Assessment and management of pain are essential components of care in paediatrics. It can be challenging to assess and identify the location and severity of pain in children, and it is important to administer effective pain relief when required. Unrelieved pain in children can result in negative consequences including physiological and psychological impacts (Ismail, 2016). Watching a child in pain can affect the family, provoking feelings of helplessness and distress. In addition, those involved in caring for a child with unrelieved pain may feel anger, frustration and stress (Ismail, 2016).Opioids are often used to manage moderate to severe pain in children, but if not used correctly can result in serious negative outcomes.

Types of pain: pain is defined as an unpleasant sensory and emotional experience associated with actual, potential or perceived tissue damage. It is classified into nociceptive and neuropathic pain based on the underlying pathophysiology (Hauer and Jones, 2017; The International Association for Study of Pain, 2014).
Nociceptive Pain: *caused by stimulation of nociceptors as a result of tissue injury.*
Neuropathic pain: *caused by stimulation or abnormal functioning of damaged sensory nerves (Hauer and Jones, 2017).*

ASSESSMENT OF PAEDIATRIC PAIN:
Please log on to My Health Learning and complete the following modules before continuing:
Paediatric SKIP: Pain Assessment
Pain Assessment

MANAGEMENT OF PAEDIATRIC PAIN

Please log on to My Health Learning and complete the following module before continuing:
Paediatric SKIP: Pain Management

Patient Controlled Analgesia (PCA) and Nurse Controlled Analgesia (NCA) are commonly used modalities for the management of moderate and severe pain in children. Intravenous opioids can be effective in managing pain, but care needs to be taken to ensure correct patient selection, and the nurse needs to have an awareness of the indications, adverse effects and nursing management required for a patient receiving opioid analgesia.

The following policies outline patient selection, management of adverse effects and nursing care for a child with a PCA or NCA. Please read the appropriate policy before completing the activities below.

John Hunter Children's Hospital
[Intravenous Opioid Infusions (PCA or NCA or Continuous)](#)

HNELHD Regional Hospitals
[Intravenous Opioid, Patient-Controlled Analgesia Infusions – Regional Hospitals](#)

Consider these patients and indicate whether a PCA would be the most appropriate form of pain relief for them. If no, what would be appropriate alternatives for them?

9 year old girl with a compound fracture of her tibia and fibula who has been to theatre for an ORIF and returned to the ward with a VACC dressing.

4 year old boy with burns to his chest and neck receiving daily dressings.

13 year old boy who has had an open appendicectomy. His appendix was ruptured.
7 year old girl with severe tonsillitis on IV Antibiotics.

15 year old boy following an MVA with a closed head injury and spinal fracture.

10 year old girl with a fractured radius to which she had a closed reduction and POP
17 year old boy with crush injuries and fractures to both hands following an injury at work.
8 year old girl with cerebral palsy and a fractured femur from falling out of her wheelchair during a seizure. _____

Name 3 things that should be assessed before an intravenous opioid is prescribed for the management of pain :
1.
2.
3.

When should the programming of the PCA be checked?

OPIOID PHARMACOKINETICS

"Opioid analgesics act on opioid receptors in the CNS and GIT producing analgesia, respiratory depression, sedation and constipation. They act mainly at mu-opioid receptors in the CNS, reducing transmission of the pain impulse, and by modulating the descending inhibitory pathways from the brain. Cough suppression occurs in the medullary centre of the brain" (Australian Medicines Handbook, 2017).

MORPHINE:

Morphine acts as an agonist, binding to receptors in the brain, spinal cord and other tissues (MIMsonline, 2017). Morphine is generally the first drug of choice for PCA/NCA/infusion unless the patient has a morphine allergy or a history of severe adverse effects from morphine (e.g. excessive nausea or severe itching).

Slight nausea, some itchiness, or slight drowsiness are side effects of morphine and do not necessarily indicate a morphine allergy. It is important to manage these side effects appropriately so that the patient can continue to receive adequate pain relief.

Access MIMsonline and the Australian Medicines Handbook via the HNEhealth Libraries site to answer the following:
http://www.hnehealthlibraries.com.au/

List several adverse reactions that may be experienced with Morphine use

a) _____

b) _____

c) _____

d) _____

e) _____

f)_____

FENTANYL

Fentanyl is an alternative IV opioid for those patients who have had adverse reactions to morphine as it is less likely to cause histamine release or nausea. Sometimes a strong family history of morphine allergy will also preclude a patient from being given morphine. Fentanyl is metabolised in the liver and excreted through the kidneys so adequate liver and kidney function is required (MIMSonline, 2017).
True or False

The duration of the respiratory depressant effect of fentanyl may be longer than the analgesic effect

_____

Asthma is a contraindication for fentanyl _____ P a g e 9 | 16

Naloxone is an agonist for Fentanyl _____

It is safe for patients with a head injury to receive a fentanyl PCA _____

The peak respiratory depressant effect of a single dose of IV fentanyl is 20 mins following injection ____
_____

HYDROMORPHONE

Hydromorphone is a narcotic analgesic. Many of the effects of hydromorphone are common with those of morphine. It is a potent opioid and the major risk of excess is respiratory depression. It can be used for acute or chronic pain (Australian Medicines Handbook, 2017).

Please describe the potency of Hydromorphone compared with Morphine?

_____

_____

_____

NALOXONE

Naloxone is an opioid antagonist and is indicated for the total or partial reversal of opioid depression (MIMsonline, 2017). Naloxone is very short acting, only 20-60 minutes, and a recurrence of the sedation can occur after naloxone is administered (Australian Medicines Handbook – Children's Doing Companion, 2017). It should be used with caution in patients who have received large doses of opioids or who are known to have a physical opioid dependence.

What is the paediatric dose of Naloxone?

_____

Case Study:
David is an 8 year old boy who has been to theatre for removal of a perforated appendix. David has no other co-morbidities. Theatre rings you on the ward and asks you to come and collect David from recovery. When you arrive in recovery, you notice David has a PCA.

What things would you check with the recovery nurse during bedside clinical handover relating to the care of the PCA?

_____

_____

_____

You bring David back to the ward, and perform a full set of observations on arrival.
What frequency of observations do you need to attend when caring for David?
JHCH: _____

Rural: _____

What pain assessment tool would you use when assessing Davids pain?

_____

_____

_____

What education are you going to provide to David and his care giver?

_____

_____

_____

How long is the PCA order valid for?
JHCH: _____

Rural: _____

You are on the afternoon shift and have taken over care of David at 2.30pm. What assessments and checks relating to the management of David's pain do you need to perform when taking over care of David?

_____

_____

_____

It is now 5pm and David has been back on the ward for 6 hours. He is rating his pain as a 2/10 and David is very drowsy. Mum states he has been sleeping on and off during the afternoon. You assess his sedation score, and it is 2.

Describe your actions.

_____

_____

_____

It is now 7pm and David is in a semi-fowlers position watching television. His sedation score is now 0 and he rates his pain a 3/10. You have given him paracetamol and IVAB's as charted. David tells you he is feeling sick, and David's mum asks you for a vomit bowl. David is NBM following surgery, and so has not eaten anything.
Describe how you are going to manage David's nausea.

_____

_____

_____

When does David's PCA need to be changed?

_____

_____

_____

David is now 48 hours post op, and his pain is well controlled. He has only accessed his PCA 4 times in the previous 24 hours and the APS have ordered for the PCA to be ceased. Describe what needs to occur for this to happen:

Medical responsibilities:

_____

_____

_____

Nursing responsibilities:

_____

_____

_____

REFERENCES

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LEARNING PACKAGE: REFLECTION ON LEARNING

This document guides your reflection on the extent to which the package meets your professional development needs, and how you plan to apply your learning into practice. This tool is not part of the assessment process, and has been included as a document that you may wish to include in your professional portfolio. Time taken to complete learning package:_____

What was your purpose in completing this learning package?

_____

_____

_____

Did you achieve this by completing the learning package?

_____

_____

_____

Reflecting on the content, what key learning have you obtained?

_____

_____

_____

What learning will you apply to your practice immediately? How will you do this?

_____

_____

_____

What learning needs have you identified as a result of completing this learning package?

_____

_____

_____

How do you plan to address these needs?

_____

_____

_____

Signature:_____Date:_____

LEARNING PACKAGE EVALUATION FORM

Your feedback regarding this learning package is important to ensure the package meets your learning needs. Please take 5 minutes to answer the following questions to facilitate any change required for future learning packages.

1. The learning outcomes of the learning package were clearly identified	Yes	No
2. The learning outcomes of the package were appropriate	Yes	No
3. The content provided enabled me to meet the learning outcomes?	Yes	No
4.The activities motivated my interest in the topic	Yes	No
5. Activities and workbook questions supported my understanding of the topic	Yes	No
6.The package was presented in a logical manner	Yes	No
7.The assessment process related to this package was clearly outlined (if applicable)	Yes	No

8. My most relevant learning outcomes from this package were:

_____

_____

_____

9. The key learning points from this package I can immediately apply to practice include::

_____

_____

_____

10. The least relevant component(s) of this package were:

_____

_____

_____

11 Some suggestions I would like made to improve the package would be:

_____

_____

_____

12. Further comments:

_____

_____