

# Managing Neonatal Pain: A Guideline for Non-neonatal Providers

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### Objectives

1. Recognize environments and situations in which neonates may experience painful stimuli
2. Understand the effect that neonatal pain has on brain development
3. Be able to recognize current neonatal pain assessment scales, and decide when to use each scale
4. Be able to understand how preterm and term neonates respond differently to painful stimuli
5. Recognize the stepwise approach of treating neonatal pain

### Introduction

- Neonatal pain is widely underrecognized and often goes unnoticed
- Many providers and parents do not know how to recognize neonatal pain and/or how to address it effectively
- Untreated pain in neonates can have detrimental effects on their developing brains
- A more universal protocol to recognize and treat neonatal pain is necessary
- Protocols should be easily accessible to all providers and parents

### Effects of Neonatal Pain on Brain Development

- Oxidative stress and free radical production throughout the body
- Reduced brain volumes and smaller limbic systems due to altered axonal connections
- Visual impairments
- Auditory impairments
- Cerebral palsy
- Attention deficits
- Behavioral concerns such as anxiety and depression
- Increased pain thresholds later in life

### Pain Scales and how They Should be Used

Many neonatal pain scales are used inappropriately. There are specific scales that should be used for each type of pain as shown below:

Type of Pain	Appropriate Scales
Acute Pain	<ul style="list-style-type: none"><li>• PIPP- R</li><li>• NIPS</li><li>• NFCS</li><li>• DAN</li></ul>
Procedural Pain	<ul style="list-style-type: none"><li>• N- PASS</li><li>• PAT</li></ul>
Chronic Pain	<ul style="list-style-type: none"><li>• COMFORT</li><li>• MAPS</li></ul>

\*All providers should be aware that pre-term infants express pain differently than full term infants (Pain scores should be interpreted accordingly)  
- Premature neonates will likely become limp (vs. pulling away) and will not act as drastically to stimuli as full-term infants

### Tiers of Treatment

1. Avoidance of Pain or Stress
2. Stress Relief (Dark rooms, calming music)
3. Breast Feeding
4. Sucrose/ Glucose Suckling
5. Kangaroo Care or Swaddling
6. Topical Anesthetics (EMLA)
7. Acetaminophen
8. Local Anesthetics (Lidocaine)
9. Opiates (morphine or Fentanyl)
10. Midazolam, Ketamine, Propofol

### Application to Clinical Practice

- Parents and all providers (even outside of the NICU) need to have access to:
  - At least 1 neonatal pain scale for each type of pain they may experience
  - A guide on how to interpret each scale based on how premature and full-term infants react to different stimuli
  - A step-wise guideline for the treatment of neonatal pain
- This can all be provided through hospital handouts/postings, nursing orders, and/or education seminars
- It is imperative that both parents and providers feel confident in assessing and treating neonatal pain in order to avoid developmental consequences

### CME Questions

1. Which is an example of a pain assessment scale for neonates experiencing chronic pain?
  - a. Neonatal pain, agitation, and sedation scale (N-PASS)
  - b. The COMFORT Scale
  - c. Pain assessment Tool (PAT)
  - d. Premature infant pain profile revised (PIPP-R)
2. What is the first step in treating neonatal pain?
  - a. Kangaroo Care
  - b. Sucrose or Glucose Suckling
  - c. Breast Feeding
  - d. Avoidance of painful or stressful procedures
3. Which is not a developmental consequence of experiencing excess pain in the neonatal period?
  - a. Increased pain thresholds later in life
  - b. Attention deficits
  - c. Short stature
  - d. Decreased sensory perception

Answers: A, D, C

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