

Advancing Parent-Led Infant Pain Care: Evidence, Parent Engagement and Advocacy

Marsha Campbell-Yeo
RN MN NNP-BC PhD FANN

Professor of Nursing, Pediatrics, Psychology & Neuroscience
Dalhousie University and IWK Health, Halifax, Nova Scotia, CANADA
marsha.campbell-yeo@dal.ca



I RESPECTFULLY ACKNOWLEDGE
THAT I AM SPEAKING TO YOU
TODAY FROM THE LAND OF
MI'KMA'KI,
THE ANCESTRAL AND UNCEDED
TERRITORY OF THE MI'KMAQ
PEOPLE

I ACKNOWLEDGE THE WISDOM
AND CONTRIBUTIONS OF ELDERS
-CURRENT, PAST AND
EMERGING



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Disclosure

No financial or conflicts of interest

I declare that I am passionate about the discovery and translation of best evidence to improve outcomes for babies and their families

MOM-LINC  LAB
@DrMCampbellYeo



Objectives

1

Describe the significance and importance of providing best evidence infant pain care

2

Review the current effectiveness of parent-led infant pain care

3

Describe at least three strategies to engage parents more fully in infant pain care

Why should we care about early exposure to pain

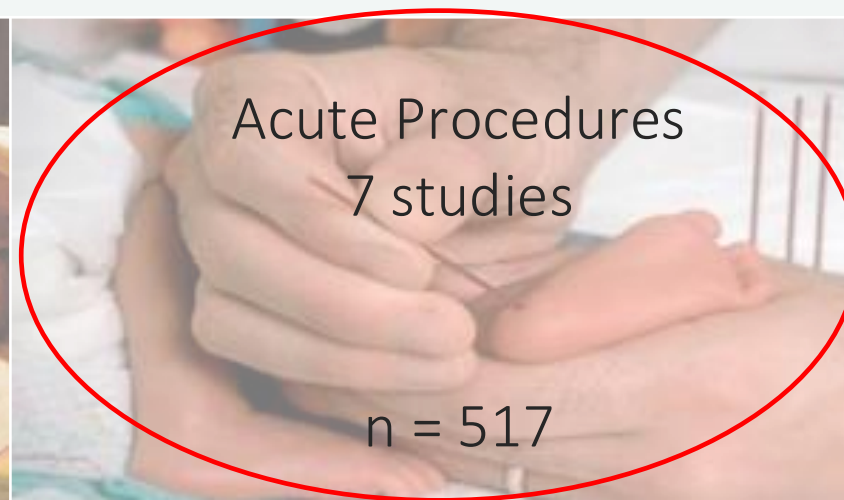
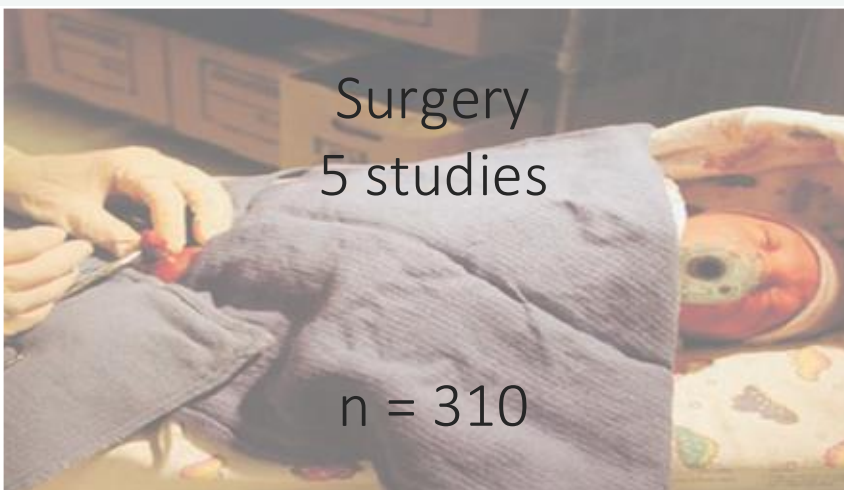


Every baby
Every day
Every where

REVIEW OF OUTCOMES OF UNTREATED PAIN IN FULL TERM INFANTS

14 studies
n = 925 infants

All but three studies reported that early pain was associated with altered later pain response, with eight reporting altered sensitivity to later pain exposure



Life • Health & Wellness

Needle phobia in childhood linked to future health-care fears

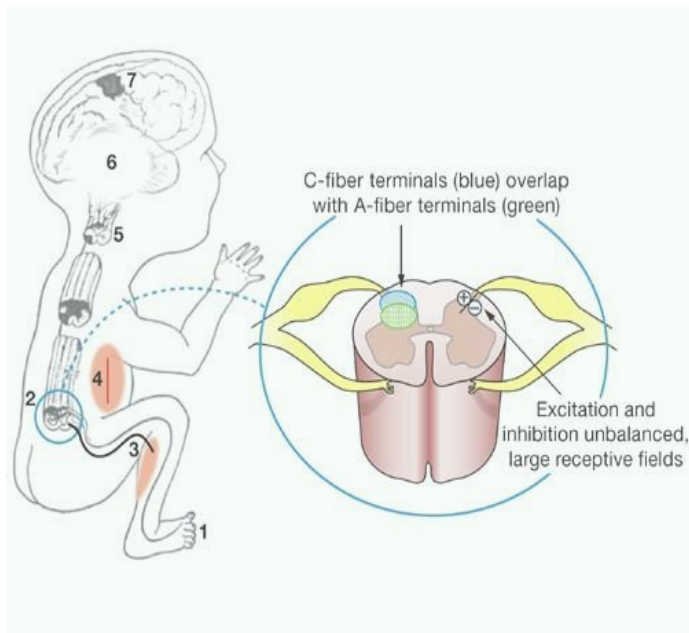
For young children who fear getting a needle, researchers have developed a scale — a series of increasingly frightened faces — that helps youngsters report their feelings.





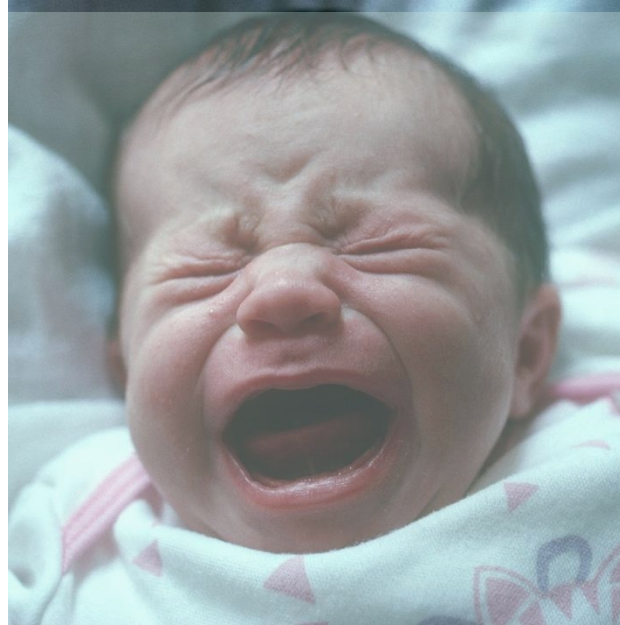
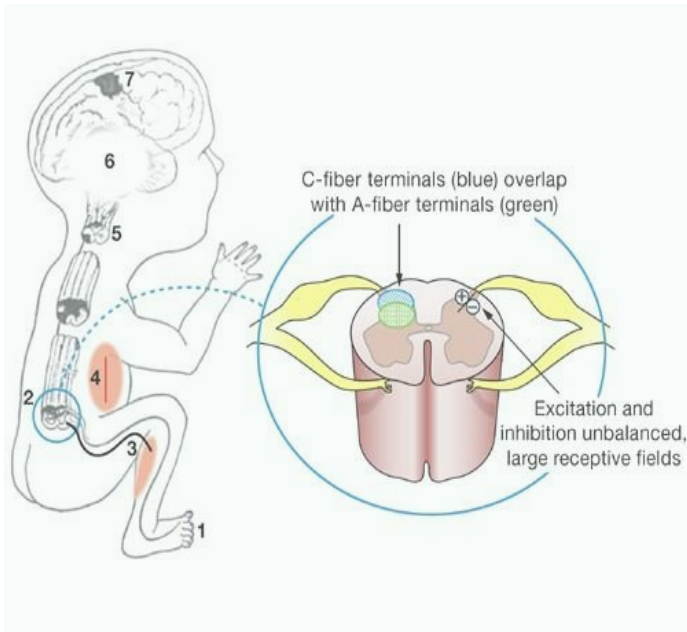
Very preterm infants most vulnerable

Immature Pain Pathways

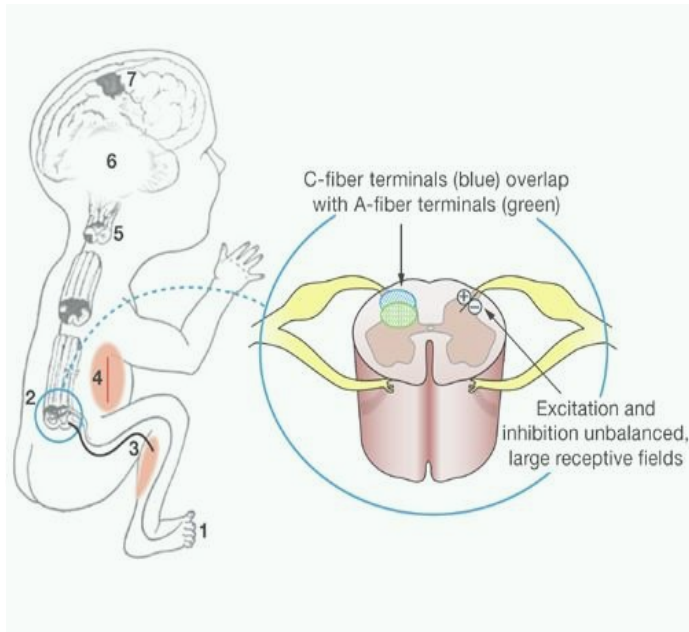


Immature Pain Pathways

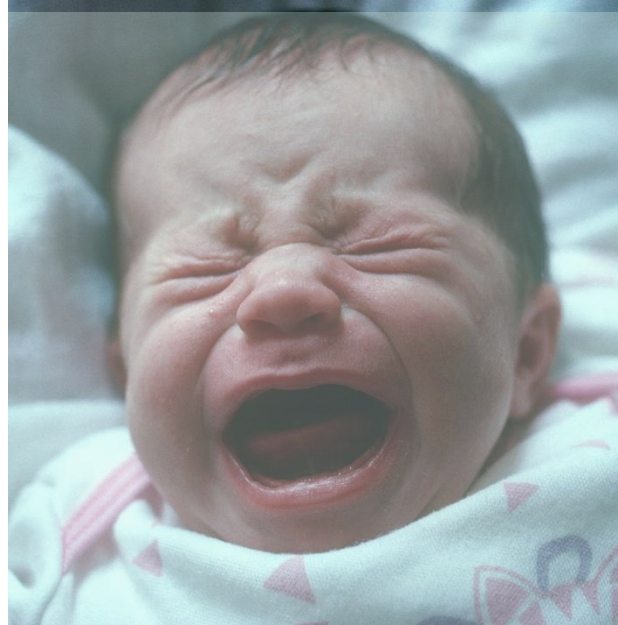
Non
Verbal



Immature Pain Pathways



Non Verbal



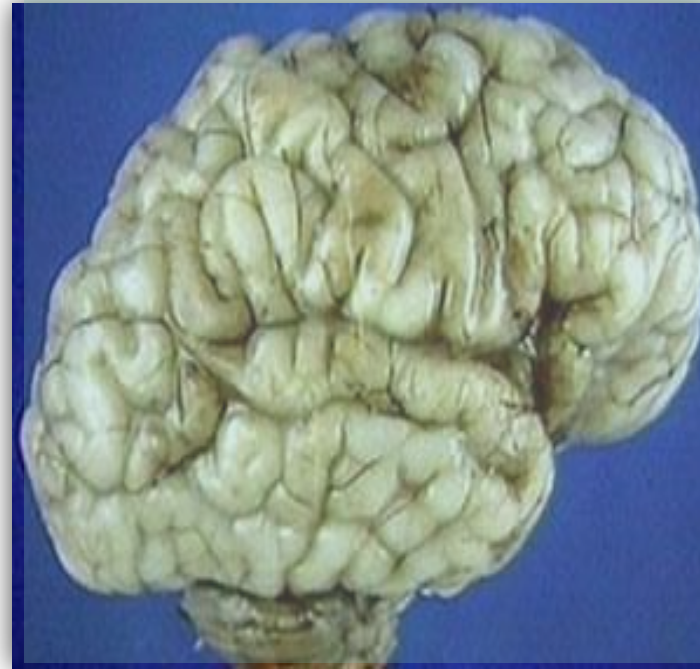
High Exposure



Critical period during very rapid brain development



Brain at 23 weeks



Brain at 40 weeks

Critical period during very rapid brain development



Early repeated pain and stress

Acute physiologic and behavioral
responses to painful stimuli

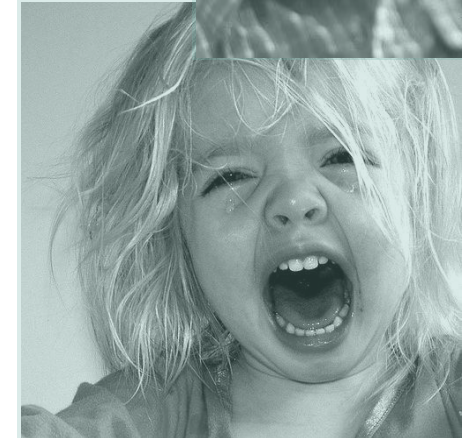
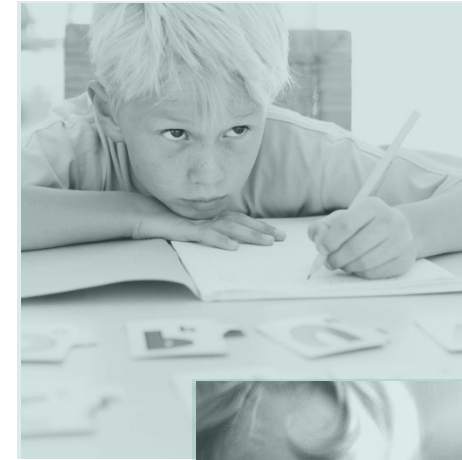
↑ HR, ↑ BP, ↓ O₂, ↑ ICP
↑ Cortisol Release

Changes in facial and body
movements



Long lasting consequences...

- Changes in response to later pain Valeri 2015, Grunau 2005, Johnston & Stevens 1996
- Impaired brain maturation Brummelte 2012, Duerden 2022&2018, Ranger 2013 & 2015, Schneider 2017
- Reduced body & head growth Vinall 2012
- Reduced visual abilities Doesburg 2013
- Poor language outcomes Vinall 2015
- Greater internalizing behaviors *McLean* 2022, Ranger 2014, Vinall 2013
- Altered H-P-A axis development *McLean* 2023, Brummelte 2015, Grunau 2004 & 2010
- Epigenetic changes Chau et al. 2014/2015; Provenzi 2018
- Autism risk, motor and language scores at 18 months *Cook* 2023
(language dysfunction at 18 months in term infants)



Management of Pain Current Neonatal Pain Guidelines

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™



Review

Assessment and Management of Pain in Preterm Infants: A Practice Update

Marsha Campbell-Yeo ^{1,2,3,*}, Mats Eriksson ⁴ and Britney Benoit ⁵

Prevention and Management of Procedural Pain in the Neonate: An Update

COMMITTEE ON FETUS AND NEWBORN and SECTION ON ANESTHESIOLOGY AND PAIN MEDICINE

Prevention and management of pain in the neonate: An update

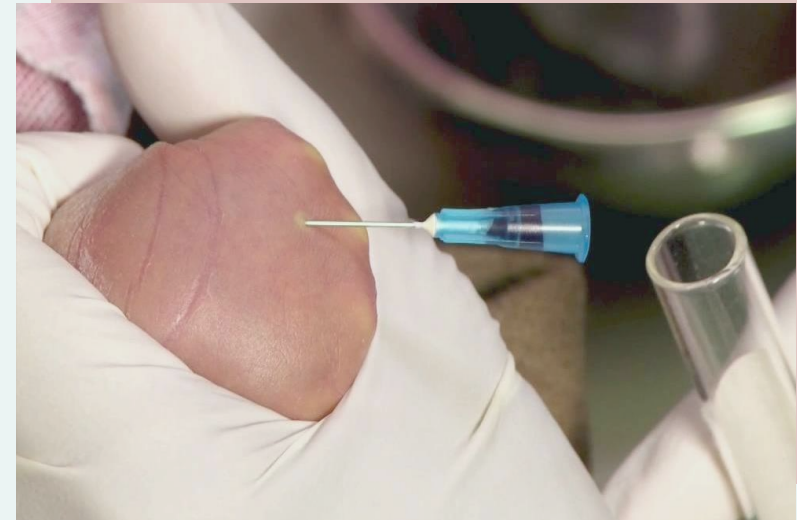
Posted: Feb 1, 2007 | **Reaffirmed:** Jan 30, 2017

New update in press 2025



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Undermanagement of infant pain



How should we approach optimal pain management in infants?



Prevent Pain Exposure

Stop routine
blood tests



Justify need for
all blood tests and procedures



Cluster blood tests to reduce # of painful exposures

Reduce # of tests being done at night

Conduct procedures when parents are present

Review

Assessment and Management of Pain in Preterm Infants: A Practice Update

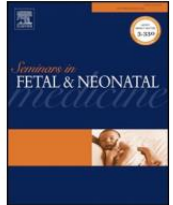
Marsha Campbell-Yeo^{1,2,3,*}, Mats Eriksson⁴ and Britney Benoit⁵



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Seminars in Fetal and Neonatal Medicine

journal homepage: www.elsevier.com/locate/siny



Assessment of pain in newborn infants

Mats Eriksson^{a,*}, Marsha Campbell-Yeo^{a,b,c}

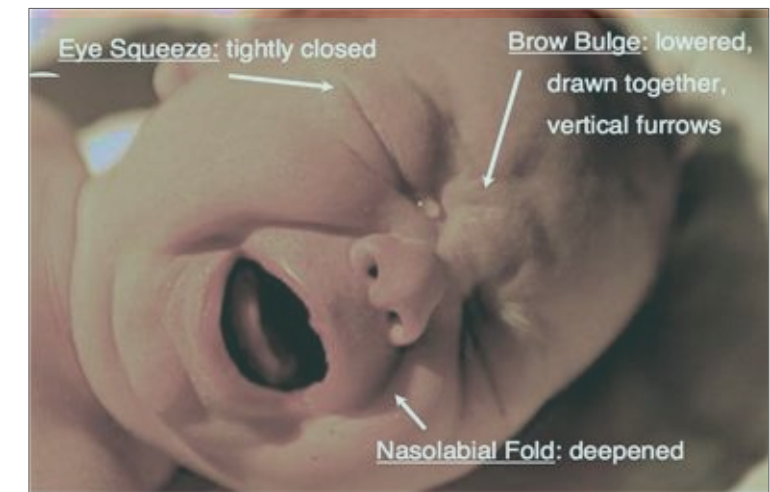


Assess pain routinely at least once per shift and
with all painful procedures

Valid and reliable age-appropriate tool

Composite assessment tool

Behavioral indicators facial actions most sensitive



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Table 2. Pain Assessment Tools for Term and Preterm Infants.

Acronym/Name	Items
Acute Procedural Pain	
ABC [46]	Acuteness, rhythmicity, and continuity of crying
BIIP [47] <i>Behavioral Indicators of Infant Pain</i>	Behavioral state, brow bulge, eye squeeze, naso-labial furrow, horizontal mouth stretch, taut tongue, finger splay, fisting
BPSN [48,49] <i>Bernese Pain Scale for Neonates</i>	Alertness, duration of crying, time to calm, skin colour, eyebrow bulge with eye squeeze, posture, breathing pattern
DANS [43], <i>Douleur Aigue Nouveau-ne</i>	Facial expression, limb movements, vocal expression
FANS [50] <i>Faceless acute neonatal pain scale</i>	HRV, acute discomfort, limb movements, vocal expressions
FLACC [51] <i>Face, Legs, Activity, Cry, Consolability scale (validated birth to adolescence)</i>	Face, legs, activity, cry, consolability
NFCS [52] <i>Neonatal Facial Coding System (some validation for post-operative pain)</i>	Brow bulge, eye squeeze, naso-labial furrow, open lips, horizontal mouth stretch, vertical mouth stretch, lip purse, taut tongue, chin quiver
NIPS [53] <i>Neonatal Infant Pain Scale</i>	Facial expression, cry, breathing patterns, arms, legs, state of arousal
NIAPAS [54] <i>Neonatal Infant Acute Pain Assessment Scale</i>	GA, alertness, facial expressions, crying, muscle tension, breathing, respirator/CPAP, reaction to handling, heart rate, oxygen saturation
PIPP, PIPP-R [55,56] <i>Premature Infant Pain Profile—Revised</i>	GA, behavioural state, heart rate, oxygen saturation, brow bulge, eye squeeze, naso-labial furrow
Post-operative Pain	
N-PASS [57] <i>Neonatal Pain, Agitation and Sedation Scale (some validation for acute procedural pain)</i>	Crying/irritability, behavior state, facial expression, extremities tone, vital signs
PAT [58] <i>Pain Assessment Tool</i>	Posture/tone, sleep pattern, expression, colour, cry, respirations, heart rate, oxygen saturation, blood pressure, nurse's perception

Review

Assessment and Management of Pain in Preterm Infants: A Practice Update

Marsha Campbell-Yeo ^{1,2,3,*}, Mats Eriksson ⁴ and Britney Benoit ⁵

Prolonged Pain

ALPS-Neo [59]

Astrid Lindgren and Lund Children's Hospital's Pain and Stress Assessment Scale for Preterm and Sick Newborn Infants

Facial expression, breathing pattern, tone of extremities, hand/foot activity, level of activity

COMFORT neo [60]

(Also validated for sedated infants)

Alertness, calmness/agitation, respiratory response, crying, body movement, facial tension, body muscle tone

EDIN [61]

Échelle Douleur Inconfort Nouveau-né

Facial activity, body movements, quality of sleep, quality of contact with nurses, consolability

MAPS [62]

Multidimensional Assessment of Pain Scale (Validated Birth to 31 months)

Vital signs, breathing pattern, facial expressions, body movement, state of arousal

Learning to assess pain using a validated pain assessment tool ?

0

Only a PIPP-R score of zero is considered no pain.



1-6

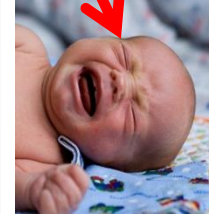
A score of 1-6 is indicative of mild pain.



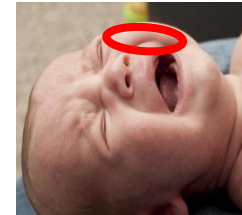
Brow
Bulge



Eye
Squeeze



Nasolabial Furrow



7-12

A score of 7-12 is considered moderate pain. This indicates the need for pain management strategies. Provide pain-relieving strategies and re-evaluate the effectiveness of treatment in 30 to 60 minutes or as per local policies.

13+

A score of 13 or greater is considered severe pain. This indicates the need for pain management strategies. Provide pain-relieving strategies and re-evaluate the effectiveness of treatment in 30 to 60 minutes or as per local policies.



Implementation and Evaluation of the Premature Infant Pain Profile-revised (PIPP-R) e-Learning Module for Assessing Pain in Infants

(Clin J Pain 2021;37:372–378)

Mariana Bueno, PhD,* Bonnie Stevens, RN, PhD, FAAN, FCAHS,*†

Megha Rao, MA,*‡ Shirine Riahi, RN, MN,*

Marsha Campbell-Yeo, RN, PhD, MN, NNP-BC,§||

Leah Carrier, RN, BScN,|| and Britney Benoit, RN, PhD¶

Infant Indicator	Indicator Score				Infant Indicator Score
	0	+1	+2	+3	
Change in Heart Rate (bpm) Baseline: _____	0 - 4	5 - 14	15 - 24	>24	
Decrease in Oxygen Saturation (%) Baseline: _____	0 - 2	3 - 5	6 - 8	>8 or increase in FiO ₂	
Brow Bulge (Sec)	None (<3)	Minimal (3 - 10)	Moderate (11 - 20)	Maximal (>20)	
Eye Squeeze (Sec)	None (<3)	Minimal (3 - 10)	Moderate (11 - 20)	Maximal (>20)	
Naso-Labial Furrow (Sec)	None (<3)	Minimal (3 - 10)	Moderate (11 - 20)	Maximal (>20)	
* Sub-total Score:					+
Corrected Gestational Age (Wks + Days)	≥36 wks	32 wks - 35 wks, 6d	28 wks - 31wks, 6d	<28wks	
Baseline Behavioural State	Active and Awake	Quiet and Awake	Active and Asleep	Quiet and Asleep	
** Total Score:					+

Evaluation of the Premature Infant Pain Profile-Revised (PIPP-R) e-Learning Module

Immediate and Sustained Competency

Marsha Campbell-Yeo, PhD, MN, NNP-BC, RN; Leah Carrier, RN; Britney Benoit, PhD, RN;

Theresa Kim, PhD; Mariana Bueno, PhD; Megha Rao, MA; Shirine Riahi, MN, RN;

Bonnie Stevens, PhD, RN, FAAN, FCAHS

Advances in Neonatal Care • Vol. 00, No. 0 • pp. 1–7



Importance of pain assessment?

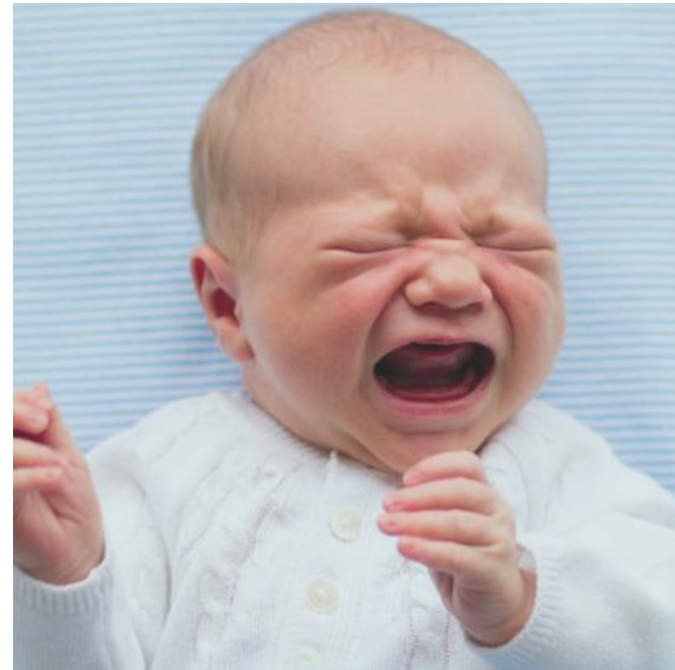
Essential first step in optimal pain care

Determine if infant is experiencing pain

Take action to reduce the pain

Evaluate pain-reducing interventions

Avoid analgesic under- or overtreatment



What are the optimal interventions

that can be used to reduce pain associated with recurrent pain exposure with respect to efficacy as well as potential to mitigate adverse outcomes?



Pharmacological interventions for neonatal pain



Choices are limited regarding efficacy related to common needle related procedures

Paracetamol (Acetaminophen)



Nine trials – 728 infants

Insufficient evidence to establish the role of Paracetamol in reducing the effects of painful procedures in neonates

Paracetamol may reduce the total need for morphine following major surgery

ERAS Recommendations, Brindle et al., 2020

Topicals



Eight studies – n= 506 infants

Insufficient evidence if topical local anesthetics applied to the skin help relieve pain during needle-related pain in full-term or preterm newborn infants within the first month

Ineffective for heel lance



Three studies – n= 206 infants

May reduce Pain associated with LP

Caution regarding EMLA application in VLBW infants

What about non-pharmacologic or sweet tasting interventions?



Cochrane Database of Systematic Reviews

Breastfeeding or breast milk for procedural pain in neonates (Review)

Shah PS, Torgalkar R, Shah VS.
Breastfeeding or breast milk for procedural pain in neonates.
Cochrane Database of Systematic Reviews 2023, Issue 8. Art. No.: CD004950.
DOI: [10.1002/14651858.CD004950.pub4](https://doi.org/10.1002/14651858.CD004950.pub4).
66 studies, 36 BF, 29 SBM, 1 comparison



Cochrane Database of Systematic Reviews

Skin-to-skin care for procedural pain in neonates (Review)

Johnston C, Campbell-Yeo M, Disher T, Benoit B, Fernandes A, Streiner D, Inglis D, Zee R.
Skin-to-skin care for procedural pain in neonates.
Cochrane Database of Systematic Reviews 2017, Issue 2. Art. No.: CD008435.
DOI: [10.1002/14651858.CD008435.pub3](https://doi.org/10.1002/14651858.CD008435.pub3).

2023 under review 35 studies (3339 infants)



Cochrane Database of Systematic Reviews

Sucrose analgesia for heel-lance procedures in neonates (Review)

Yamada J, Bueno M, Santos L, Haliburton S, Campbell-Yeo M, Stevens B

Yamada J, Bueno M, Santos L, Haliburton S, Campbell-Yeo M, Stevens B.
Sucrose analgesia for heel-lance procedures in neonates.
Cochrane Database of Systematic Reviews 2023, Issue 8. Art. No.: CD014806.
DOI: [10.1002/14651858.CD014806](https://doi.org/10.1002/14651858.CD014806).

55 trials (6273 infants)



Cochrane Database of Systematic Reviews

Sucrose for analgesia in newborn infants undergoing painful procedures (Review)

Stevens B, Yamada J, Ohlsson A, Haliburton S, Shorkey A.
Sucrose for analgesia in newborn infants undergoing painful procedures.
Cochrane Database of Systematic Reviews 2016, Issue 7. Art. No.: CD001069.
DOI: [10.1002/14651858.CD001069.pub5](https://doi.org/10.1002/14651858.CD001069.pub5).
74 trials (7049 infants)



Cochrane Database of Systematic Reviews

Non-pharmacological management of infant and young child procedural pain (Review)

Pillai Riddell RR, Bucsea O, Shiff I, Chow C, Gennis HG, Badovinac S, DiLorenzo-Klas M, Racine NM, Ahola Kohut S, Lisi D, Turcotte K, Stevens B, Uman LS.
Non-pharmacological management of infant and young child procedural pain.
Cochrane Database of Systematic Reviews 2023, Issue 6. Art. No.: CD006275.
DOI: [10.1002/14651858.CD006275.pub4](https://doi.org/10.1002/14651858.CD006275.pub4).

138 studies (11,058 participants) 0-3 years

Top three most effective pain reducing interventions



Adjuvant Therapies



Johnston & Campbell-Yeo 2017; Pillai-Riddell, 2023; McNair, Campbell-Yeo, Johnston, Taddio, 2019

Adjuvant Therapies

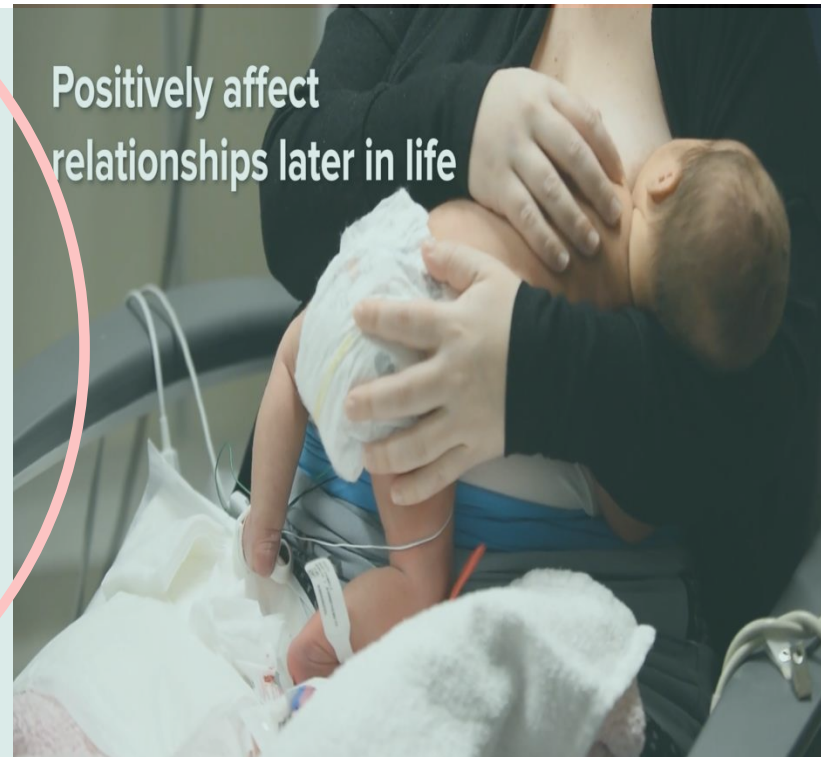


Combination
of > than three



Johnston & Campbell-Yeo 2017; Pillai-Riddell, 2023; McNair, Campbell-Yeo, Johnston, Taddio, 2019

Top three most effective pain reducing interventions



RESEARCH ARTICLE

Open Access



The minimally effective dose of sucrose for procedural pain relief in neonates: a randomized controlled trial

Bonnie Stevens^{1*}, Janet Yamada², Marsha Campbell-Yeo³, Sharyn Gibbins⁴, Denise Harrison⁵, Kimberley Dionne⁶, Anna Taddio⁷, Carol McNair⁸, Andrew Willan⁹, Marilyn Ballantyne¹⁰, Kimberley Widger¹¹, Souraya Sidani¹², Carole Estabrooks¹³, Anne Synnes¹⁴, Janet Squires¹⁵, Charles Victor¹⁶ and Shirine Riahi¹⁷



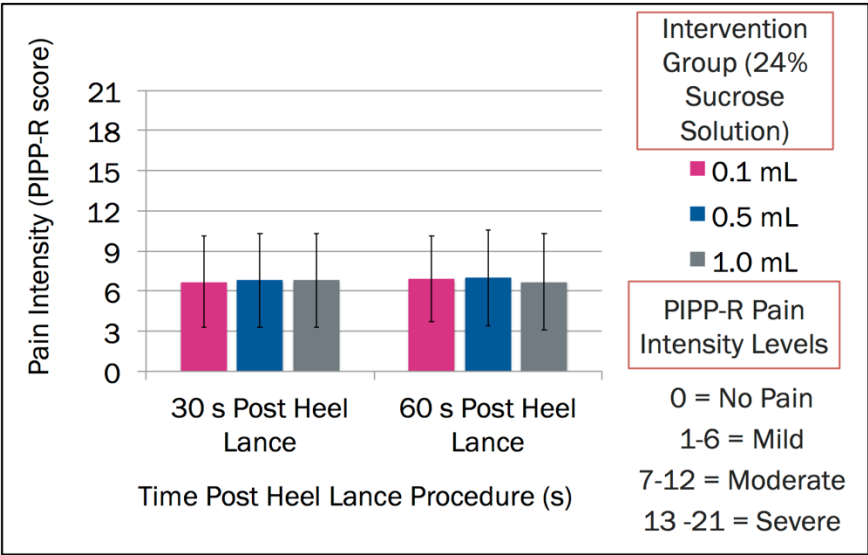
THE PROBLEM

20-fold variation in sucrose dose

TAKE HOME MESSAGE

0.1mL appears to be the minimally effective dose of 24% sucrose required to reduce pain response in neonates undergoing heel lance.

FIGURE 2. MEAN PAIN INTENSITY SCORES BY SUCROSE DOSE



Apply to the **tip of the tongue**, pacifier, or mom's finger
Give 2 minutes prior to procedure
Repeat as needed throughout procedure

RESEARCH PAPER

Sustained efficacy of kangaroo care for repeated painful procedures over neonatal intensive care unit hospitalization: a single-blind randomized controlled trial

Campbell-Yeo, Marsha^{a,b,*}; Johnston, C. Celeste^c; Benoit, Britney^{b,d}; Disher, Timothy^{b,d}; Caddell, Kim^b; Vincer, Michael^{b,e}; Walker, Claire-Dominique^f; Latimer, Margot^{b,d}; Streiner, David L.^{g,h}; Inglis, Darleneⁱ

[Author Information](#) ⓘ

Campbell-Yeo PAIN, 2019

PAIN: November 2019 - Volume 160 - Issue 11 - p 2580-2588

doi: 10.1097/j.pain.0000000000001646

SDC

Editor's Choice

2019 Global Year

Video

 Metrics



Outcomes



 frontiers | Frontiers in Pain Research



TYPE Original Research
PUBLISHED 07 February 2023
DOI 10.3389/fpain.2023.1110502

 Check for updates

OPEN ACCESS

EDITED BY

Paolo Montaldo,
Imperial College London, United Kingdom

REVIEWED BY

Kathryn Anne Russell,
Counties Manukau District Health Board, New Zealand
Joan Simons,
Independent Researcher, Milton Keynes, United Kingdom

*CORRESPONDENCE

Bonnie Stevens
✉ bonnie.stevens@sickkids.ca

The effectiveness of repeated sucrose for procedural pain in neonates in a longitudinal observational study

Mariana Bueno¹, Marilyn Ballantyne^{2,3}, Marsha Campbell-Yeo^{4,5},
Carole A. Estabrooks⁶, Sharyn Gibbins⁷, Denise Harrison^{8,9,10},
Carol McNair¹¹, Shirine Riahi¹, Janet Squires¹⁰, Anne Synnes¹²,
Anna Taddio^{1,13}, Charles Victor¹⁴, Janet Yamada¹⁵
and Bonnie Stevens^{1,2*}

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Top three most effective pain reducing interventions



Families and Pain Management

Parent's role in pain care
has been
significantly underutilized

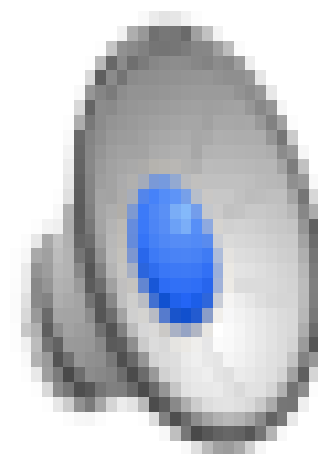


Parent-led interventions

- Breastfeeding during intramuscular injection
- SSC during heel lance



Heel lance during maternal
skin-to-skin contact



With COVID, we experienced an overall decrease in parent involvement during routine painful procedures...

...we are still rebuilding

Supporting parents as essential care partners in neonatal units during the SARS-CoV-2 pandemic

Nicole R. van Veenendaal^{1,2}  | Aniko Deierl³  | Fabiana Bacchini⁴ | Karel O'Brien⁵  | Linda S. Franck⁶  | the International Steering Committee for Family Integrated Care*

Postpartum anxiety and depression up to 40% among NICU mothers, with even higher rates reported during pandemic

Commentary
Women's health and midwifery

Unintended consequences of restricting father presence during maternity care during the COVID-19 pandemic

 Marsha Campbell-Yeo^{1, 2}

nature human behaviour



Article

<https://doi.org/10.1038/s41562-023-01522-y>

Changes in preterm birth and stillbirth during COVID-19 lockdowns in 26 countries



DOI: 10.1097/JPN.0000000000000714

J Perinat Neonat Nurs • Volume 37 Number 4, E17-E23 • Copyright © 2023 Wolters Kluwer Health, Inc. All rights reserved.

Parental Perspectives on Impact of Parental Presence Restrictions in the Neonatal Intensive Care Unit During the COVID-19 pandemic

A Cross-Sectional Study

Morgan MacNeil, BScN, RN; Marsha Campbell-Yeo, PhD, MN, NNP-BC, RN; Holly McCulloch, MAsc, BSc; Brianna Hughes, BScN, RN; Justine Dol, PhD; Nicola Marriott, BSc; Victoria Smith, BSc; Lynsey Alcock, MSc, MPH, BHSc



Contents lists available at ScienceDirect

Journal of Neonatal Nursing

journal homepage: www.elsevier.com/locate/jnn



Parental perspectives on technology use to enhance communication and closeness during the COVID-19 parental presence restrictions



Marsha Campbell-Yeo^{a,b,c,*}, Holly McCulloch^c, Brianna Hughes^a, Amos Hundert^c, Justine Dol^c, Michael Smit^d, Jehier Afifi^{b,c}, Fabiana Bacchini^e, Tanya Bishop^c, Jon Dorling^f, Rebecca Earle^c, Annette Elliott Rose^c, Darlene Inglis^c, Carye Leighton^c, Gail MacRae^c, Andrea Melanson^c, David C. Simpson^{b,c}, Leah Whitehead^c



Contents lists available at ScienceDirect

Journal of Neonatal Nursing

journal homepage: www.elsevier.com/locate/jnn



A co-design of clinical virtual care pathways to engage and support families requiring neonatal intensive care in response to the COVID-19 pandemic (COVES study)



Marsha Campbell-Yeo^{a,b,c,d,e,*}, Justine Dol^{b,d}, Brianna Richardson^{a,d}, Holly McCulloch^d, Amos Hundert^d, Sarah Foye^d, Jon Dorling^c, Jehier Afifi^c, Tanya Bishop^e, Rebecca Earle^e, Annette Elliott Rose^e, Darlene Inglis^e, Theresa Kim^e, Carye Leighton^f, Gail MacRae^e, Andrea Melanson^e, David C. Simpson^c, Michael Smit^g, Leah Whitehead^f

SPECIAL ISSUE

Impact of COVID-19 restrictions on the postpartum experience of women living in Eastern Canada during the early pandemic period: A cross-sectional study

Justine Dol MSc✉, Brianna Hughes BScN, Megan Aston RN, PhD, Douglas McMillan MD, Gail Tomblin Murphy RN, PhD, Marsha Campbell-Yeo NNP, PhD

What if we encourage parents to provide comfort during more-invasive procedures?

Central lines, Arterial Lines, Lumbar Punctures, Umbilical Catheters

Families and Pain Management SSC during sterile long line insertion

A parent who can be with their newborn infant continuously will be able to provide comfort as well as learn their baby's signs of comfort and discomfort and should be involved in pain assessment in collaboration with the staff



Parent provided comfort modified SSC during umbilical line insertion



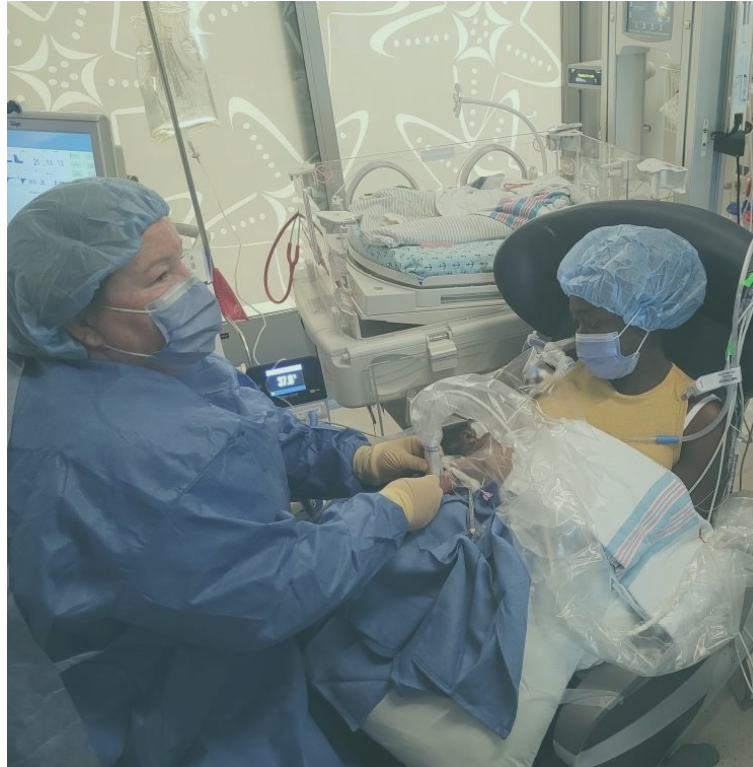
Parent and HCP supported parent contact, smell and voice, during lumbar puncture



SSC during lumbar puncture



Modified SSC during ultrasound guided central line insertion



Full term infant with congenital heart disease awaiting surgery

SSC during ultrasound guided central line insertion



ELBW infant 950g

Parent Experience

PICC Line & Arterial Line

“During our stay in the NICU my son had several PICC and arterial lines put in. [He] was calmer on me and was quicker to respond to my touch and voice. It also gave me a sense of achievement that I could provide some comfort and security during an uncomfortable procedure.”



Parent Experience

PICC Line & LP

“I often feel guilty and helpless as a mother to an extreme preterm baby in the NICU, instinctually wanting to protect my baby but not knowing how. Being able to hold and comfort him while he is undergoing treatments has given me a renewed sense of importance in my child’s care.”



Parent-led interventions

- Breastfeeding during intramuscular injection
- SSC during heel lance



What about new science to support parent-led interventions?



The influence of breastfeeding on cortical and bio-behavioural indicators of procedural pain in newborns: Findings of a randomized controlled trial

Britney Benoit ^a, Aaron Newman ^b, Ruth Martin-Misener ^c, Margot Latimer ^c, Marsha Campbell-Yeo ^c

Highlights

- Breastfeeding and sucrose demonstrated comparable efficacy in reducing behavioural pain scores in response to heel lance.
- Breastfeeding may differentially modulate pain-related brain activity and physiologic recovery with fewer safety concerns.
- Results support breastfeeding as the first line treatment for acute procedures in full term infants in the postpartum period.

39 full-term infants randomized to breastfeeding (n=20) or 0.24 mL of 24% oral sucrose plus offered non-nutritive sucking (n=19) 2 min prior to heel lance.

Infants who were breastfeeding had an appreciably smaller, yet not statistically different, amplitude pain-related potential following heel lance compared to infants who received oral sucrose

Mean PIPP-R scores were indicative of low pain with no statistically significant difference across groups

Mean time in seconds to physiologic recovery was faster in breastfeeding infants (17.5) compared to oral sucrose (70.8)

There were no safety concerns.

Breastfeeding and oral sucrose both reduce bio-behavioural responses to pain, however, may differentially modulate pain response in the infant brain. Further research is warranted

ORIGINAL ARTICLE



The impact of parental contact upon cortical noxious-related activity in human neonates

**Laura Jones¹ | Maria Pureza Laudiano-Dray¹ | Kimberley Whitehead¹ | Judith Meek² |
Maria Fitzgerald¹ | Lorenzo Fabrizi¹ | Rebecca Pillai Riddell³**

N=27 infants equally divided (SSC, parent holding clothed, incubator)
Event-related potentials (ERPs) measured following heel lance
Smallest amplitude noted in SSC group, largest in infants being held clothed
Limitations – small non-random sample, wide variation in GA and PNA
Further work warranted





Campbell-Yeo et al. *Trials* (2022) 23:512
<https://doi.org/10.1186/s13063-022-06424-4>

STUDY PROTOCOL

Open Access

The influence of skin-to-skin contact on Cortical Activity during Painful procedures in preterm infants in the neonatal intensive care unit (iCAP mini): study protocol for a randomized control trial

Marsha Campbell-Yeo^{1*}, Britney Benoit², Aaron Newman³, Celeste Johnston⁴, Tim Bardouille⁵, Bonnie Stevens⁶ and Arlene Jiang⁷

N=126 infants

Trials



OXFORD

Cerebral Cortex, 2022, 32, 3799–3815

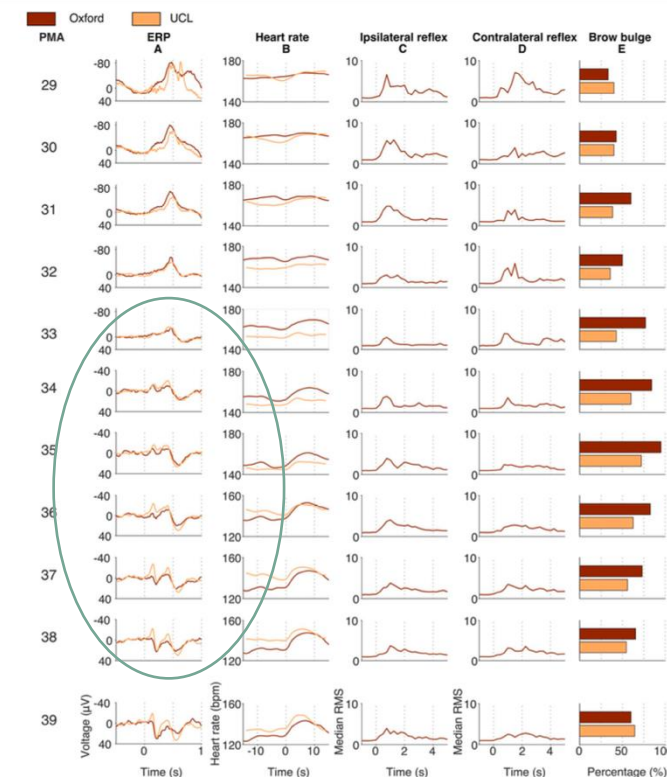
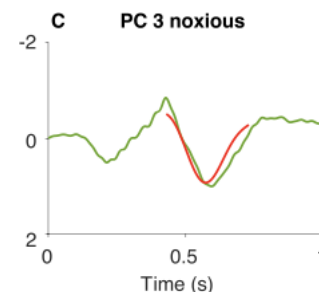
<https://doi.org/10.1093/cercor/bhab449>

Advance access publication date: 28 December 2021

Original Article

Premature infants display discriminable behavioral, physiological, and brain responses to noxious and nonnoxious stimuli

Marianne van der Vaart¹, Caroline Hartley¹, Luke Baxter¹, Gabriela Schmidt Mellado¹, Foteini Andritsou¹, Maria M. Cobo^{1,2}, Ria Evans Fry¹, Eleri Adams³, Sean Fitzgibbon^{4,†}, Rebecca Slater^{1,†}



@marsha.campbell-yeo@dal.ca

THE PROBLEM

Despite strong evidence regarding effective interventions to reduce pain in infants, much of this knowledge isn't being put into practice



State of the Art in Parent-Delivered Pain-Relieving Interventions in Neonatal Care: A Scoping Review

Alexandra Ullsten^{1,2}, Matilda Andreasson³ and Mats Eriksson^{2*}

Skin-to-skin contact	44
Breastfeeding / breastmilk	22
Combining methods	8
Holding / swaddling	7
Massage	4
Facilitated tucking	2
Infant directed singing	2



Ullsten et al. 2021



OPEN ACCESS

EDITED BY

Anthony Herbert,
Queensland University of Technology,
Australia

REVIEWED BY

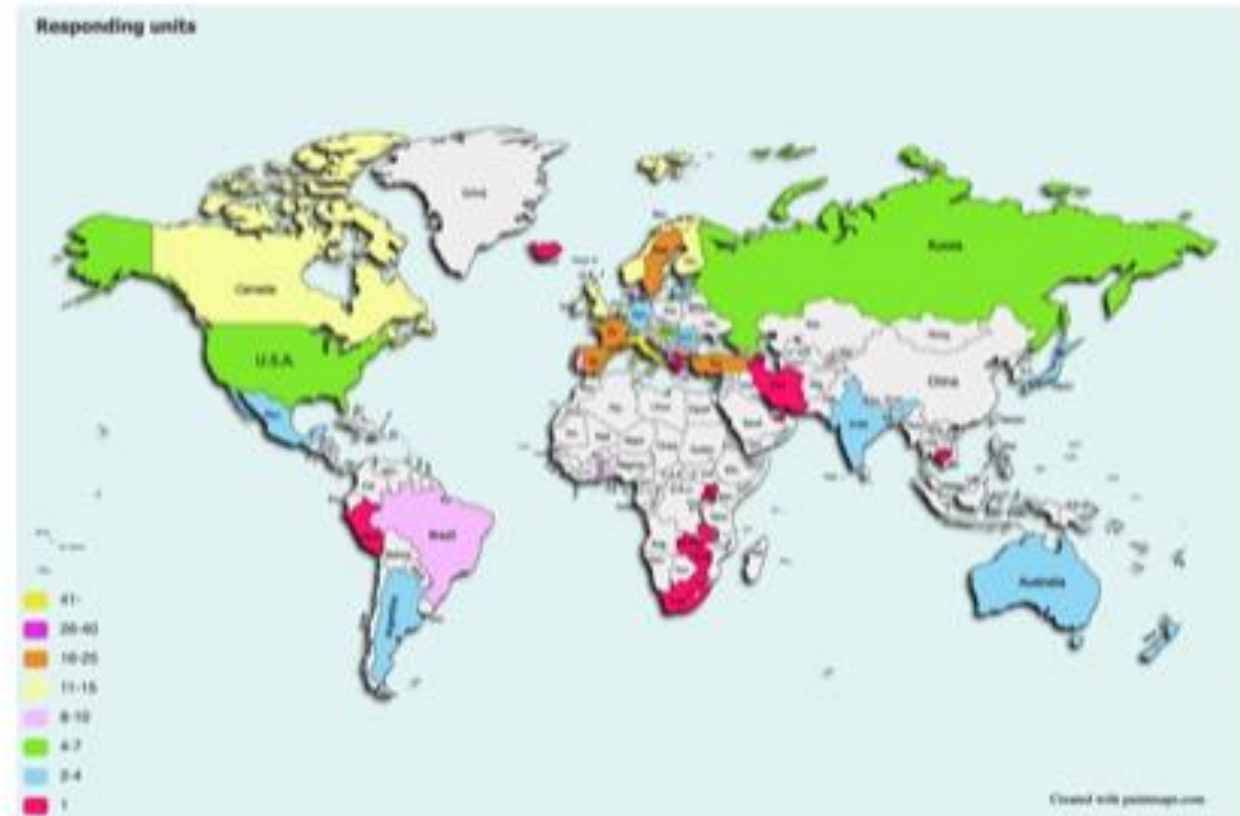
Lorenzo Fabrizi,
University College London, United Kingdom

Parent-led neonatal pain management—a narrative review and update of research and practices

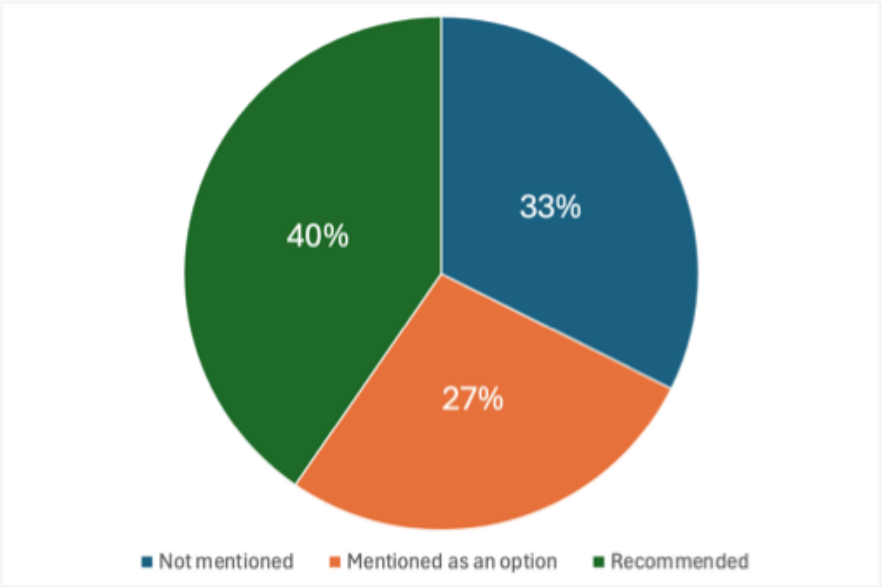
Alexandra Ullsten^{1,2}, Marsha Campbell-Yeo^{3,4} and Mats Eriksson^{2*}

Global survey about parents and pain management

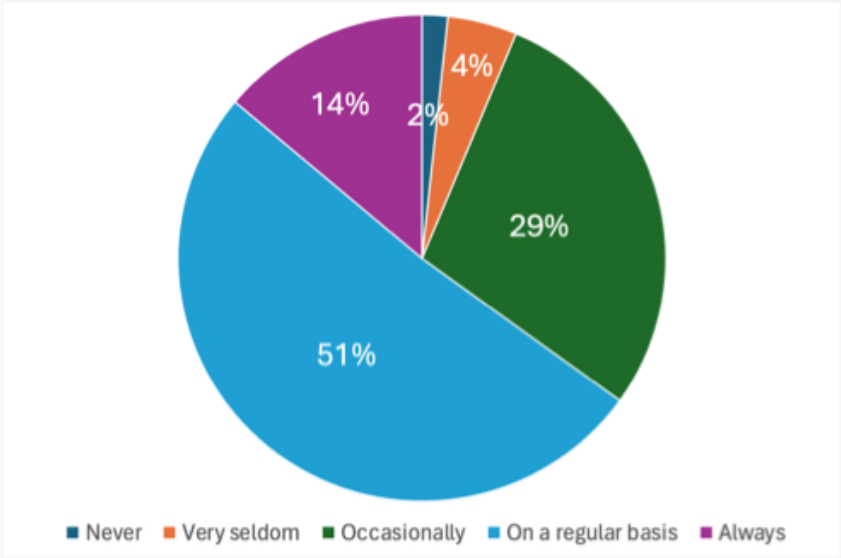
- Researchers from
 - PEARL – Pain in Early Life
 - ESPR Neonatal Pain SIG
- Web-based survey 2023
- 303 units in 44 countries
- Most high-income / high SDI
- 11% no guidelines



Is the role of parents mentioned in the guidelines?



Do parents provide pain relief in your unit?





ELSEVIER

Contents lists available at ScienceDirect

Pain Management Nursing

journal homepage: www.painmanagementnursing.org



Original Research

Soothing and Distress Behaviors of Infants, Parents, and Clinicians During Childhood Vaccinations



Morgan MacNeil, BScN RN^{*,†,‡}, Amos Hundert, MSc[‡], Marsha Campbell-Yeo, PhD MN NNP-BC RN^{*,†,‡,§,1}

^{*} School of Nursing, Dalhousie University, Halifax, NS, Canada

[†] Faculty of Health, Dalhousie University, Halifax, NS, Canada

[‡] MOM-LINC Lab, IWK Health, Halifax, NS, Canada

[§] Departments of Pediatrics, Psychology and Neuroscience, Dalhousie University, Halifax, NS, Canada

Received: 27 March 2024

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DOI: 10.1111/scs.13297

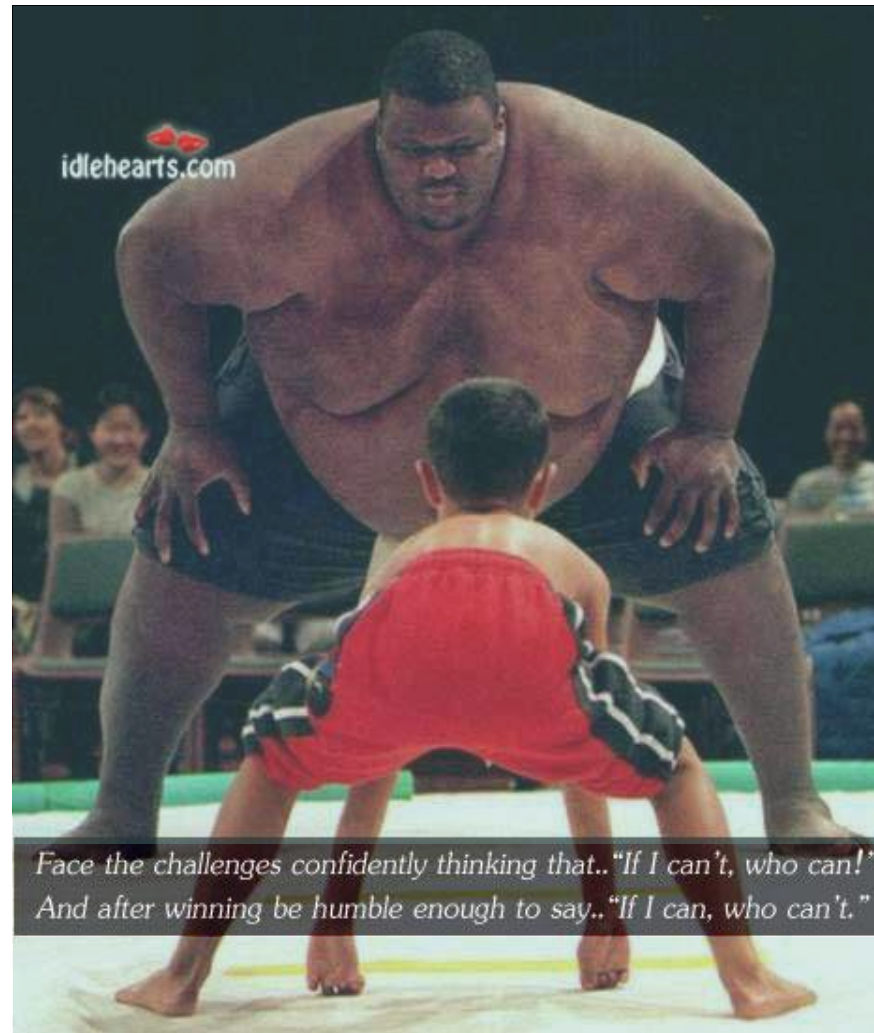
ORIGINAL ARTICLE

Scandinavian Journal of
Caring Sciences

Parenting pain away: Quasi-experimental study of an eHealth learning platform to evaluate acceptability, feasibility, and utilisation of parent-led pain management

Brianna Hughes RN, PhD, Assistant Professor^{1,2,3}  | Ruth Martin-Misener NP, PhD, FAAN, FCAN, Director and Professor^{1,3} | Margot Latimer RN, PhD, Professor and Indigenous Health Chair in Nursing^{1,2,3} | Michael Smit PhD, PDF, Professor and Dean⁴ | Patrick McGrath OC, C.Psych, Clinical Psychologist, Professor Emeritus^{2,5} | Marsha Campbell-Yeo RN, NNP-BC, MN, PhD, FANN, Professor^{1,2,3}

Changing the culture of pain care





Build relationships for parent-led pain care
to reduce infant pain

How well are you or your unit/clinic managing infant and neonatal pain?



Engagement of Parents

Many parents are still unaware about their capacity in pain care

Parents prefer using the Internet to access information

- + General health
- + Infant pain management

Online perinatal related sources

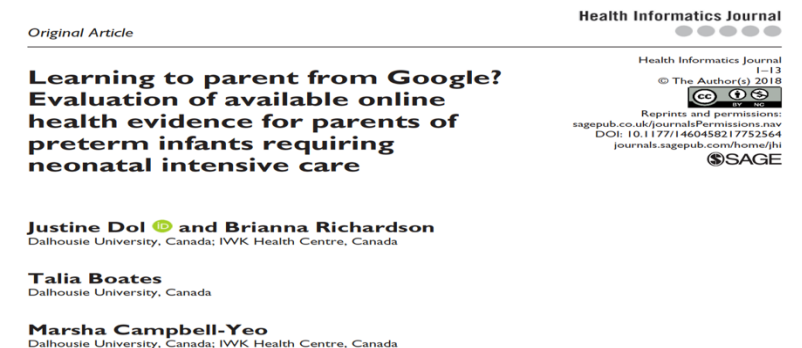
- + Reliability is often difficult to discern
- + Likely do not include procedural pain information



Smartphone and Internet Preferences of Parents

Information Needs and Desired Involvement in Infant Care and Pain Management in the NICU

Talia Orr, BScN; Marsha Campbell-Yeo, PhD, NNP-BC, RN; Britney Benoit, MSc(A)N, RN; Brenda Hewitt, MN, RN, CNCCP(C), BCLC; Jennifer Stinson, PhD, RN-E, CPNP; Patrick McGrath, OC, PhD, FRSC



JMIR Mhealth Uhealth. 2019 Apr; 7(4): e11620.

Published online 2019 Apr 15. doi: [10.2196/11620](https://doi.org/10.2196/11620)

PMCID: PMC6487340

PMID: [30985282](https://pubmed.ncbi.nlm.nih.gov/30985282/)

Evaluation of Mobile Apps Targeted to Parents of Infants in the Neonatal Intensive Care Unit: Systematic App Review

Monitoring Editor: Gunther Eysenbach

Reviewed by Adam Powell, Enrique Dorronzoro, and Melanie Stuckey

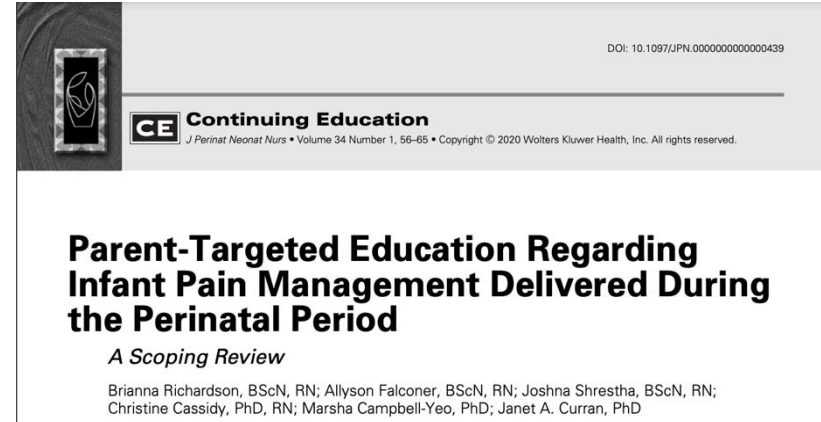
Brianna Richardson, BScN, RN, ^{1,2,3} Justine Dol, MSc, ^{2,3} Kallen Rutledge, MLIS, ³ Joelle Monaghan, MN, RN, ³ Adele Orovec, BScMS, ³ Katie Howie, BScN, RN, PNC, ³ Talia Boates, BScN, RN, ³ Michael Smit, PhD, ⁴ and Marsha Campbell-Yeo, NNP-BC, RN, PhD ^{1,3,5,6}

Dol et al., 2018; Dol, Hughes et al., 2022; Orr et al., 2016; Richardson, Dol et al., 2019; Sundstrom, 2016

eHealth Education on Infant Pain

To determine if eHealth educational interventions about infant procedural pain management impacts

- + Parental outcomes
- + eHealth outcomes
- + Pain management outcomes



Eligible eHealth interventions targeted parents during pregnancy and up to 1 year postpartum

eHealth Education on Infant Pain

Of 4163 studies screened, 11 were included for review

Included studies described 4 unique interventions

- + Used video format
- + Delivered postnatally, when specified
- + Provided credible, evidence-based education

Findings are mixed but suggest improvements to parents' knowledge, confidence, and desire to be involved in pain management

Innovative Strategies to Increase Parent Engagement in Infant Pain Care



The Power of a Parent's Touch

Evaluation of Reach and Impact of a Targeted Evidence-Based YouTube Video

Marsha Campbell-Yeo, PhD, NNP-BC, RN; Justine Dol, MSc; Timothy Disher, BScN, RN; Britney Benoit, MScN; Christine T. Chambers, PhD; Kaitlyn Sheffield, BScN, RN; Talia Boates, BScN, RN; Denise Harrison, PhD, RN; Brenda Hewitt, MN, NP, RN; Krista Jangaard, MD; Jennifer Stinson, PhD, RN-EC, CPNP; Anna Taddio, PhD; Jennifer A. Parker, PhD; Kim Caddell, BScN



>230,000 views; 152 countries; 17 languages



Learn

What would you like to learn about?



CHAPTER 1
Parents as Partners
Learn about the NICU environment and the important role that you play in your baby's care

Continue



CHAPTER 2
Comforting Your Baby
Learn about the amazing power you have to help your baby throughout your time in the NICU

Review



CHAPTER 3
Creating a Nurturing Environment
Learn how you can create the best environment for your baby's brain development

Review

Why is Providing Comfort Important?



You have the power to help your baby feel less pain and experience **less stress**

Babies feel and remember pain⁽¹⁾. During your baby's stay in the NICU, it is likely that they will experience pain and stress as part of their necessary medical care^(1, 2).

Babies in the NICU have minimal ways to cope with pain⁽¹⁾. Without the ability to tell us what hurts or how to make it better, they can become easily overwhelmed and stressed. This stress can change how your baby's brain grows and develops^(1, 3-5).

As parents, you can help your baby feel less pain and experience less stress by providing them with your familiar comfort!

- | | |
|---|--|
| <p>Effects of untreated stress and pain later in life⁽¹⁾:</p> <ul style="list-style-type: none"> • Learning challenges • Difficulty making decisions • Trouble controlling emotions • How pain is experienced later in life | <p>Parents can help protect their baby from pain and stress by^(1, 3-5):</p> <ul style="list-style-type: none"> • Skin-to-Skin Contact • Breast Feeding • Familiar Touch • Familiar Tastes and Smells |
|---|--|

Here are some common cues to know:



Changes in Facial Expressions



Changes in Body Movements



Changes in Breathing Patterns



Changes in Skin Colour



Changes in Sleep



Changes in Sounds or Cries

Facial expressions and other cues

Your baby's facial expressions can sometimes tell you if your baby is in pain.

Four common facial expressions of pain in babies include:



1. Eye squeeze (eyes closed)
2. Brow bulge (furrowed, wrinkly, or bulging eye brows)
3. Wide open mouth (lips may be tight, mouth may be stretched wide and square shaped, tongue may be cupped in shape)
4. Nasolabial furrow (a deep crease or fold in the skin that goes from your baby's nose down to the corners of the mouth)

Mobilization

CHAPTER 2 · INTRODUCTION

What Can I Do Now?

By providing comfort to your baby you are protecting their fragile **brain!**

Your voice, your touch, your **heartbeat**, and even the way you **smell** are comforting to your baby⁽⁶⁾.

Parents can reduce the impact of painful procedures by providing comfort before, during, and after painful procedures in the NICU^(6, 7).

Here is how:



Skin-to-Skin Contact has many health benefits for you and your baby and has shown to be effective in providing comfort during painful procedures⁽²⁾.



Breast feeding can help comfort and soothe your baby and increase bonding^(3, 4).



Facilitated tucking is a great way to comfort your baby, reducing stress during and after painful procedures, when you cannot hold them in skin-to-skin contact^(5, 6).



A **scented cloth** is an easy way to keep your scent close to your baby during the times you cannot be with them⁽⁷⁾.

You can comfort your baby like no one else

If you think your baby is stressed or in pain, let a member of your NICU care team know. They may be able to adjust your baby's care to make it less stressful, or explain why it's needed, and if their reaction is normal. **You know your baby best!**

This chapter will go over the many ways to provide your baby with comfort.

Here are just a few:



Skin-to-skin Contact



Breast Feeding (when able)



Familiar Scents



Respond to Cues



Facilitated Tucking/Hand Hugs



Check the surroundings. Lights, noise, uncomfortable sensations (lying on a wire or tube, too tight ID band, wrinkles in blankets underneath a baby etc.)



Position and Support



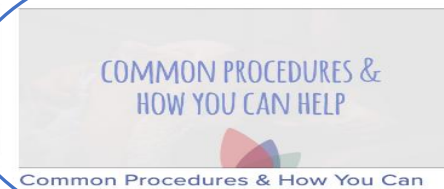
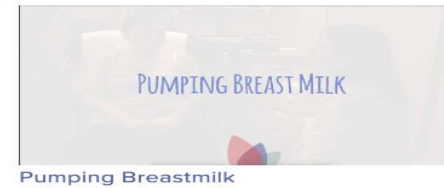
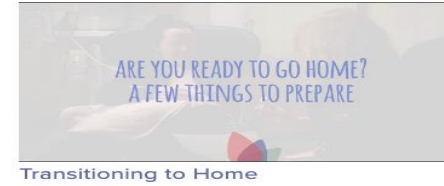
Non-nutritive Sucking

PHOTOMUNN

700+ Photo Inventory



Videos



Parenting Pain Away: Development and usability testing of an educational website about infant procedural pain management

B. Hughes✉, R. Martin-Misener, M. Latimer, M. Smit, P. McGrath, M. Campbell-Yeo

First published: 21 February 2023 | <https://doi.org/10.1002/pne2.12096>



Received: 27 March 2024 | Accepted: 10 August 2024
DOI: 10.1111/scs.13297

ORIGINAL ARTICLE



Parenting pain away: Quasi-experimental study of an eHealth learning platform to evaluate acceptability, feasibility, and utilisation of parent-led pain management

Brianna Hughes RN, PhD, Assistant Professor^{1,2,3} | Ruth Martin-Misener NP, PhD, FAAN, FCAN, Director and Professor^{1,3} | Margot Latimer RN, PhD, Professor and Indigenous Health Chair in Nursing^{1,2,3} | Michael Smit PhD, PDF, Professor and Dean⁴ | Patrick McGrath OC, C.Psych, Clinical Psychologist, Professor Emeritus^{2,5} | Marsha Campbell-Yeo RN, NNP-BC, MN, PhD, FANN, Professor^{1,2,3}

<https://www.parentingpainaway.com/> ABOUT LEARN COMFORT STRATEGIES RESOURCES



This website is for you and your family.

Here, you can learn special ways to comfort your baby during painful procedures, and build confidence to be involved in your baby's pain management.



Explore the purpose of this website and learn more about the people behind creating it

about



Learn about being a partner in pain management and getting to know your baby

learn



Dive into five ways you can provide pain relief to your baby during procedures

comfort

Special ways you can comfort your baby during painful procedures.

This is important because when your baby is comfortable it reduces their pain and stress.

In fact, treating pain **supports healthy brain development!**



What can you do?

1) Be with your baby as much as you can. You know your baby best.

Use your **superpowers!** Even just your voice, your smell, and your touch comforts your baby.

2) Make a care plan with your baby's nurse that includes:

Understanding the painful procedures and tests your baby may have, and when, and how best to comfort your baby. *Common painful procedures can include needles, heel prick, blood test, eye exam, ultrasound, etc.*



Breastfeeding*. This is the best way to reduce your baby's pain.

*if your baby can



Supporting your baby with hand holding (facilitated tucking).

*when your baby cannot be held



Holding your baby skin-to-skin.

*if you cannot breastfeed



Offering a pacifier*.

*if you cannot breastfeed

Remember, you should still be breastfeeding or holding skin-to-skin for painful procedures. This is the best way to reduce your baby's pain and stress. Sometimes your baby's care team will also add a 'sweet taste' beforehand.

*Sweet taste is liquid sugar drops into your baby's mouth that research says can help to reduce pain.

Why is this important? *Research tells us:*

- pain **affects short and long term health**
- babies **feel and remember pain**
- babies **can't tell us when they are in pain**
- pain is **not always managed for all procedures**
- unmanaged pain can affect how your baby **responds to pain in later years**



Visit us online for more resources
canadianpreemies.org

MOM LINC
improving outcomes in newborn care

CPBF  Canadian Premature Babies Foundation

Delivering transformative action in paediatric pain: a Lancet Child & Adolescent Health Commission

Every child experiences pain. But pain is too often silenced and appropriate relief too infrequently given.

It is time for action.

Make pain **matter**

We need to improve equity, eliminate stigma, and make pain matter to everyone—health professionals, policy makers, funders, researchers, clinicians, and society at large.



Make pain **understood**

We need to improve our knowledge of all types of pain across the life course through investment in research. Our understanding must integrate biological, psychological, and social elements.

Make pain **visible**

We need standardised and reliable assessments for pain. Pain status should be determined in every child and treatment decisions driven by a person-centred approach.



Make pain **better**

We need to avoid unnecessary pain and prevent the transition from acute to chronic pain. We must strive for universal access to effective pain treatments for all children and adolescents.

For full details, read the Commission:
Delivering transformative action in paediatric pain

THE LANCET **Child & Adolescent Health**

The best science for better lives



Support during painful procedures and pain assessment

Oude-Reimer M, Frauenfelder O, Binter J, Camba F, Ceccatelli M, Hanks-Drielsma I, Jørgensen E, Silva E

Statement of the standard

All infants in neonatal and paediatric units receive optimal comfort to minimise stress and pain, supported by their parents.



For parents and family

- Parents are informed by healthcare professionals about strategies to optimise comfort, minimise painful stimuli and manage unavoidable pain during care.
- Parents are informed by healthcare professionals about and offered the opportunity to be present and assist during procedures, when appropriate.
- Parents are educated by healthcare professionals to recognise pain and discomfort signals in their infant and how to comfort the infant.



For neonatal unit

- A unit guideline for maintaining comfort, avoiding unnecessary pain and discomfort and use of appropriate pharmacological and non-pharmacological pain relief is available and regularly updated.
- Each unit recognises and utilises an individualised developmental care approach when reducing and avoiding pain and discomfort experiences during infants stay in the hospital.

Benefits

Short-term benefits

- Improved sleep
- Improved digest of feeding
- Improved weight gain
- Improved cortisol levels
- Improved physiologic stability

Long-term benefits

- Improved brain structure and development
- Improved behaviour



For healthcare professionals

- A unit guideline on the importance of appropriate pharmacologic and non-pharmacologic pain relief strategies during care and procedures is adhered to by all healthcare professionals.
- Training to recognise pain and distress in term and preterm infants is attended by all responsible healthcare professionals.
- Training to avoid any non-essential painful and discomfort procedures is attended by all healthcare professionals.
- Pain and stress are assessed using validated tools.
- All infants receive appropriate pharmacological and non-pharmacological pain relief.



For hospitals

- Training to recognise pain and distress in term and preterm infants and to avoid any non-essential painful and discomfort procedures is ensured.

Component	Grading of evidence	Indicator of meeting the standard
For parents and family		
1. Parents are informed by healthcare professionals about strategies to optimise comfort, minimise painful stimuli and manage unavoidable pain during care.	A (High quality) B (High quality)	Patient information sheet ¹
2. Parents are informed by healthcare professionals about and offered the opportunity to be present and assist during procedures, when appropriate. (10)	A (High quality) B (High quality)	Audit report ² , patient information sheet ¹
3. Parents are educated by healthcare professionals to recognise pain and discomfort signals in their infant and how to comfort the infant. (15)	A (High quality) B (High quality)	Patient information sheet ¹ , training documentation
For healthcare professionals		
4. A unit guideline on the importance of appropriate pharmacologic and non-pharmacologic pain relief strategies during care and procedures is adhered to by all healthcare professionals.	B (High quality)	Audit report ² , guideline
5. Training to recognise pain and distress in term and preterm infants is attended by all responsible healthcare professionals. (3)	A (High quality) B (High quality)	Audit report ² , training documentation
6. Training to avoid any non-essential painful and discomfort procedures is attended by all healthcare professionals. (3)	A (High quality) B (High quality)	Training documentation
7. Pain and stress are assessed using validated tools. (6,9)	A (High quality) B (High quality)	Assessment tools
8. All infants receive appropriate pharmacological and non-pharmacological pain relief. (3,15–21)	A (High quality) B (High quality)	Audit report ² , guideline
For neonatal unit		
9. A unit guideline for maintaining comfort, avoiding unnecessary pain and discomfort and use of appropriate pharmacological and non-pharmacological pain relief is available and regularly updated. (4,6,9)	A (High quality) B (High quality)	Guideline
10. Each unit recognises and utilises an individualised developmental care approach when reducing and avoiding pain and discomfort experiences during infants stay in the hospital. (22)	A (High quality) B (High quality)	Audit report ²
For hospital		
11. Training to recognise pain and distress in term and preterm infants and to avoid any non-essential painful and discomfort procedures is ensured. (4,6,9)	A (High quality) B (High quality)	Training documentation

HSO and SKIP release the first Pediatric Pain Management Standard

Ottawa – April 3, 2023 – Today, Solutions for Kids in Pain (SKIP) and the Health Standards Organization (HSO) are pleased to announce Canada's first Pediatric Pain Management Standard, providing guidance to health organizations on how to deliver equitable and quality pain management across hospital settings.



Designation as a National Standard of Canada
by the Standards Council of Canada (SCC).

Make Pain Matter- Establishing a Pediatric Pain Management Framework

Make Pain Understood: Professional Development to Create a Knowledgeable and Confident Workforce

Make Pain Matter: Continuous Quality Improvement for Pediatric Pain Management

Make Pain Better: Multi-Modal Pain Management Strategies

Make Pain Visible: Comprehensive Pain Assessment and Reassessment

Make Pain Better: Co-developing an Individualized Care Plan

Parent
Resources



@marsha.campbell-yeo@dal.ca



OPEN ACCESS

EDITED BY

Kee Thai Yeo,
KK Women's and Children's Hospital,
Singapore

REVIEWED BY

Nai Ming Lai,
Taylor's University, Malaysia
Alvin S. M. Chang,
KK Women's and Children's Hospital,
Singapore

*CORRESPONDENCE

Marsha Campbell-Yeo
✉ marsha.campbell-yeo@dal.ca

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Campbell-Yeo M, Bacchini F, Alcock L, Mitra S,
MacNeil M, Mireault A, Beltempo M, Bishop T,
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Grant A, Gubbay J, Hughes B, Hundert A



Practice recommendations regarding parental presence in NICUs during pandemics caused by respiratory pathogens like COVID-19

Marsha Campbell-Yeo^{1,2*}, Fabiana Bacchini³, Lynsey Alcock², Souvik Mitra⁴, Morgan MacNeil^{1,2}, Amy Mireault², Marc Beltempo⁵, Tanya Bishop², Douglas M. Campbell⁶, Addie Chilcott⁷, Jeannette L. Comeau^{2,8}, Justine Dol², Amy Grant⁹, Jonathon Gubbay¹⁰, Brianna Hughes^{1,11}, Amos Hundert², Darlene Inglis², Alanna Lakoff¹², Yasmin Lalani^{3,13}, Thuy Mai Luu¹⁴, Jenna Morton^{3,15}, Michael Narvey¹⁶, Karel O'Brien^{17,18}, Paula Robeson¹⁹, Michelle Science^{17,20}, Prakesh Shah^{17,18} and Leah Whitehead^{2,3}

The spark:

The negative impact of restrictive parental presence policies in NICUs during the COVID-19 pandemic.

Rationale

- Hospitals restricted parental access leaving babies without a parent or a support person, even during extreme illness or death.
- Significant variations existed in parental access policies, even in the same city.
- Parents reported higher negative mental health outcomes during the restrictions.

The response:

Co-created best evidence practice recommendations regarding parental presence in NICUs during pandemics caused by respiratory pathogens such as COVID-19.

How we got there:

Consensus Panel: A diverse group of individuals with expertise related to the project.



Values, preferences, and evidence guided our recommendations

Step 1: Gathered impact data (via national surveys) from parent/ caregivers, healthcare providers, and NICU leadership

Step 2: Completed literature review

Step 3: Identified 50 potential recommendation items

Step 4: Conducted two rounds of Delphi surveys.

Participants (n=59) rated and ranked each item on importance:

- Round 1:** Rated 50 items (on scale of 1 – 5)
- Round 2:** Ranked the top 20 items of Round 1 (from 1 – 20)

Step 5: Presented rapid evidence synthesis of the benefits and potential harms for the top rated items to the consensus panel. Categorized each item as a **Strong** or **Conditional** recommendation, based on strength of evidence and value.

Step 7: Asked panel members: **Do you agree with including this item as a national recommendation?**

Consensus was reached if at least 80% of the panel agreed to add the item



PRESENCE STUDY
Keeping Families Together in NICU

Contributors Mom-LINC Lab • Canadian Premature Babies Foundation • Canadian Institutes of Health Research • Dalhousie University • CANN (Canadian Association of Neonatal Nurses) • Centre hospitalier universitaire Sainte-Justine • Children's Healthcare Canada • Children's Hospital of Eastern Ontario • CNFNU (Canadian Neonatal Follow-up Network) • CNN (Canadian Neonatal Network) • CPS (Canadian Pediatric Society) • BC Children's Hospital • IWK Health • Lunenburg-Tanenbaum Research Institute • Maritime SPOR Support Unit • McGill University Health Centre • MICRYN • Mount Sinai Hospital • Mount Sinai Research Institute (Toronto) • Public Health Canada • Public Health Ontario • SickKids Hospital • St. Michael's Hospital • Université de Montréal • University of Manitoba • University of Toronto

Visit the Canadian Premature Babies Foundation at canadapremies.org for more information.

Consensus practice recommendations regarding parental presence in NICUs during pandemics

caused by respiratory pathogens such as COVID-19.

Parent/Caregiver(s) should have:

1 Status for parent/caregiver(s) as essential caregivers

2 Unrestricted access to provide skin-to-skin contact for their infant in the NICU.

3 Unrestricted access to breastfeed and to receive breastfeeding supports (including early hand expression, pumping and pumps, encouragement, and lactation support) for their infant in the NICU.

4 Uninterrupted access to mental health and psychosocial support services while their infant is admitted to the NICU.

5 Uninterrupted access to attend medical rounds while their infant is admitted to the NICU.

6 Inclusion in co-designing/decision-making for parent-related NICU policies (e.g., infection control, response planning), including NICU parent partners and advocates.

7 Unrestricted access to provide hands-on care tasks for their infant in the NICU.

8 Unrestricted access to provide healing touch for their infant in the NICU.

9 Unrestricted, in-person access to attend medical rounds while their infant is admitted to the NICU. **Virtual care services may be preferred**, based on the local context or if parent need/parent preference warrants it.

10 Unrestricted, in-person access to mental health and psychosocial support services while their infant is admitted to the NICU. **Virtual care services may be preferred**, based on the local context or if parent need/parent preference warrants it.

11 Uninterrupted access for two parents/caregivers to be present while their infant is admitted to the NICU.

12 Unrestricted access to food and allocated spaces to eat/drink while their infant is admitted to the NICU.

13 Unrestricted access to use communication devices (their own or hospital devices) for remote connectedness and support (with partners, family, peers, etc.) while they are in the NICU with their infant.

*Strong: the consensus panel was confident that the benefit outweighed the undesirable effects. Conditional: the consensus panel concluded that the benefits probably outweighed the undesirable effects, and should be implemented, but new evidence might change the recommendation.

Call to Action: Consistent nationwide evidence-based recommendations must be implemented to support the health and well-being of infants and their parents, ensure equitable care, and navigate future infection control crises.



PRESENCE STUDY
Keeping Families Together in NICU

Contributors Mom-LINC Lab • Canadian Premature Babies Foundation • Canadian Institutes of Health Research • Dalhousie University • CANN (Canadian Association of Neonatal Nurses) • Centre hospitalier universitaire Sainte-Justine • Children's Healthcare Canada • Children's Hospital of Eastern Ontario • CNFNU (Canadian Neonatal Follow-up Network) • CNN (Canadian Neonatal Network) • CPS (Canadian Pediatric Society) • BC Children's Hospital • IWK Health • Lunenburg-Tanenbaum Research Institute • Maritime SPOR Support Unit • McGill University Health Centre • MICRYN • Mount Sinai Hospital • Mount Sinai Research Institute (Toronto) • Public Health Canada • Public Health Ontario • SickKids Hospital • St. Michael's Hospital • Université de Montréal • University of Manitoba • University of Toronto

Visit the Canadian Premature Babies Foundation at canadapremies.org for more information.

child**kind**



IWK HEALTH COMFORT PROMISE TOOLKIT



What is a Comfort Promise Toolkit?

- It is a resource for parents and caregivers of children coming to the IWK Health Centre to help prevent and manage pain during their visit.
- It will help your child before, during, and after their appointment or hospital stay.
- We want to help reduce your child's pain. Research shows that if you use this toolkit your child may:
 - Have less pain now and in the future
 - Learn healthy practices that can last a lifetime
- IWK Health has committed to doing, **"everything possible to prevent and treat pain."**
- Please review this toolkit and ask your health care provider if you have any questions about your child's specific needs.

"We will do everything possible to prevent and treat pain."



Take home messages

Repeated exposure to pain in early life has immediate and significant long lasting negative outcomes affecting later pain response, cognitive and behaviorally outcomes

Prevent pain when possible, no routine bloodwork & always justify need

Assess pain regular and often using age appropriate and valid tools

Prioritize maternal or parent-led effective interventions - breastfeeding & SSC as first line interventions

Sweet tasting solutions most effective if parent unavailable, or in FT infants unable to latch during SSC

All other interventions considered adjuvant, or in combination of three

Active engagement of parents in pain care benefit babies & parents



Managing neonatal pain is more than something nice to do

It is a modifiable factor that can change infant outcomes

Parent-led pain care is an essential component of optimal evidence-based infant care



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Thank You