

CLINICAL MANUAL

Policy/Practice Guidelines/Procedure

TITLE:	Oral Sucrose Administration for Minor Procedural Pain Management in Infants Less than or Equal to 12 Months of Age	NUMBER:	1700
Sponsor:	Director, Children’s Health	Page:	1 of 9
Approved by:	IWK Policy and Practice Committee	Approval Date:	Feb. 11, 2020
		Effective Date:	Jan. 21, 2021
Applies To:	Registered Nurses (RN) , Licensed Practical Nurses (LPN) , Nurse Practitioners(NP), Midwives, Physicians , Medical Radiation Technologists (MRT), Medical Laboratory Technologists (MLT), Medical Lab Assistants (MLA)		

PREAMBLE

The IWK Health Centre is committed to do everything possible to prevent and treat pain through its Children’s Comfort Promise™. This is achieved through pain prevention, evidence-informed pain assessment and appropriate management strategies (see [Policy #1519 – Pain Management](#)). Infants often experience a number of painful procedures during their hospital visit (see Appendix A). Historically, infant pain has not been well understood or managed despite the fact that unrelieved pain can have long term health implications for the child.

When a painful procedure is required it is critical to partner with the infant’s parents, offer evidence-based strategies to decrease pain, and provide a documented pain management plan.

Close proximity to the parent during breastfeeding and during skin-to-skin contact has been shown to provide analgesic benefits for minor procedural pain in infants less than or equal to 12 months and should be offered to infants and their parents. Sucrose has been demonstrated to provide pain relief for minor procedural pain for infants less than or equal to 12 months and should be offered as an adjunct if other pain management strategies are not adequate or if the infant is unable to be skin to skin (see Appendix B).

Sucrose solution for oral administration is classified as a licensed natural health product and **not** a medication. As such, it falls outside of the act of prescribing and does not require an approved prescriber’s order to administer.

POLICY STATEMENTS

1. RN's, LPNs, NP's, midwives, MRT's, MLT's, and MLA's have the authority to recommend and administer 24% sucrose solution without an approved prescriber's order to appropriate infants as per the practice guidelines outlined herein.
2. Parents/family caregivers may administer 24% sucrose solution for minor painful procedures in collaboration with their above health care provider. Oral sucrose should not be used as an agent to calm a fussy baby outside the realm of procedural pain management.
3. Sucrose must **not** be administered via enteral feeding tubes.

PRACTICE GUIDELINES

1. Skin-to-skin contact with or without breastfeeding is the preferred method to diminish pain from minor procedures in infants.
2. Expressed breast milk alone without skin-to-skin contact has minimal analgesic benefit.
3. For some minor procedures and for repeated procedures, sucrose may be required along with skin-to-skin contact and/or breastfeeding to ensure optimal pain management. The need for sucrose as an adjuvant therapy is based on an assessment of the infant's ongoing or previous pain response.
4. Oral sucrose is most effective in newborn and young infants, but has been shown to be effective in infants up to 12 months. It has been shown to decrease crying, grimacing, heart rate and pain scores with minor painful procedures (see Appendix A).
5. Sucrose is administered orally as a 24% solution. Peak onset of action is within 2 minutes and effects can last for 5-10 minutes. The exact mechanism is unknown; it is felt that it is a two phase response, with the initial effect secondary to distraction and the analgesic effect due to endogenous opiate release at two minutes post exposure.
6. Best results are achieved when used in combination with other comfort measures such as skin-to-skin contact, breastfeeding, non-nutritive sucking (e.g. gloved finger, pacifier), and/or swaddling.
7. The response to pain and pain treatment is patient-specific. If the infant does not respond to sucrose, consult the most responsible care provider (i.e. physician, midwife, nurse practitioner). Additional pain medications may be required in conjunction with sucrose.

8. Contraindications:

Sucrose must **NOT** be administered to babies who have:

- Metabolic or endocrine dysfunction (e.g. diabetes; a documented diagnosis or a family history of fructose, sucrose or sorbitol intolerance).
- Carbohydrate intolerance due to short bowel syndrome.

9. Precautions:

- Exercise caution when administering sucrose to infants who are extremely preterm, critically ill, NPO or unable to suck/swallow to decrease risk of choking and/or aspiration.

PROCEDURE

1. An approved health care provider recognizes the need to administer or recommend the use of 24% oral sucrose for a minor painful procedure in an infant up to 12 months of age (see Appendix A)
2. Provide other non-pharmacological interventions for procedural pain as appropriate (Appendix B)
 - Position of comfort including holding or cuddling by parent or care provider
 - Breastfeeding
 - Skin to Skin contact
 - Full or partial bundling
 - Reduction of environmental stimuli such as noise, bright light.
3. The approved health care provider documents the assessment of the appropriateness of recommending sucrose for the infant and the discussion with the infant’s parents on the permanent health record. Exception: In the Outpatient Lab or Diagnostic Imaging this documentation is not required.
4. Administer the sucrose with the following recommendations based on weight:

Patient Weight	Suggested volume of 24% oral sucrose solution
any NPO neonates/infants	Increments of 1-2 drops (0.04-0.08 mL) (up to suggested weight-based dose)
less than 1200 grams	Up to 5 drops (0.2 mL)
1200 – 1500 grams	Up to 10 drops (0.4 mL)
1500 – 2500 grams	Up to 25 drops (1 mL)

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2500 – 5000 grams	Up to 50 drops (2 mL)
greater than 5000 grams	Up to 63 drops (2.5 mL)

Note: Although there is no maximum daily dose for sucrose, if the infant requires multiple exposures to sucrose for procedural pain, please discuss procedures and pain management with the most responsible care provider.

5. Obtain 24% sucrose solution.
 - 5.1. It is suggested to administer approximately 25% of the total recommended dose 2 minutes prior to procedure; the remainder of the dose may be given in small increments during the procedure as needed. However, the full dose can be given prior to the procedure if deemed appropriate.
 - 5.2. Place the tip of the squeezable sucrose solution twist tip vial directly on or near **the anterior tip of the tongue**.
6. Offer non-nutritive sucking in addition to other comfort measures (e.g. skin-to-skin contact, facilitated tucking).
7. Monitor pain response during the procedure.
8. Administer additional sucrose doses and comfort measures based on pain response and length of procedure.
9. Discard any remaining sucrose.
10. Document the infant's response during the procedure and/or pain score on the appropriate record(s).
11. Document the amount of sucrose administered on the appropriate record for the care area.

REFERENCES

Canadian Paediatric Society (2019) Position Statement- Managing pain and distress in children undergoing brief diagnostic and therapeutic procedures

<https://www.cps.ca/en/documents/position/managing-pain-and-distress>

Children's Healthcare Canada Community of Practice- Paediatric Pain Toolkit and Resources
<https://ken.childrenshealthcarecanada.ca/xwiki/bin/view/Paediatric+Pain/Oral+Sucrose+Toolkit>

Sucrose for analgesia in newborn infants undergoing painful procedures. Stevens B, Yamada J, Lee GY, Ohlsson A. Cochrane Database Syst Rev. 2013 Jan 31;1:CD001069. doi: 10.1002/14651858.CD001069.pub4. Review. PMID: 23440783

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A systematic review and meta-analyses of nonsucrose sweet solutions for pain relief in neonates. Bueno M, Yamada J, Harrison D, Khan S, Ohlsson A, Adams-Webber T, Beyene J, Stevens B. *Pain Res Manag.* 2013 May-Jun;18(3):153-61. Review. PMID: 23748256

Sweet-tasting solutions for needle-related procedural pain in infants one month to one year of age. Kassab M, Foster JP, Foureur M, Fowler C. *Cochrane Database Syst Rev.* 2012 Dec 12;12:CD008411. doi: 10.1002/14651858.CD008411.pub2. Review. PMID: 23235662

Sweet tasting solutions for reduction of needle-related procedural pain in children aged one to 16 years. Harrison D, Yamada J, Adams-Webber T, Ohlsson A, Beyene J, Stevens B. *Cochrane Database Syst Rev.* 2015 May 5;5:CD008408. doi: 10.1002/14651858.CD008408.pub3. Review. PMID: 25942496

Codipietro L, Ceccarelli M, Ponzzone, A. (2008). Breastfeeding or oral sucrose solution in term neonates receiving heel lance: A randomized, controlled trial. *Pediatrics*, 122(3), e716-e721.

College of Licensed Practical Nurses of Nova Scotia & College of Registered Nurses of Nova Scotia, personal communication, July 12, 2018.

Harrison D, Loughnan P, Manias E, Gordon I, & Johnston L., (2009). Repeated doses of sucrose in infants continue to reduce procedural pain during prolonged hospitalizations. *Nursing Research*, 58(6), 427-434.

Harrison D, Stevens B, Bueno M, Yamada J, Adams-Webber T, Beyene J, & Ohlsson A. (2009). Efficacy of sweet solutions for analgesia in infants between 1 and 12 months of age: A systematic review. *Archives of Disease in Childhood*, 95(6), 406-413.

Harrison D, Yamada J, & Stevens B. (2010). Strategies for prevention and management of neonatal and infant pain. *Current Pain and Headache Reports*, 14(2), 113-123.

Taddio A, Shah V, Hancock R, Smith R, Stephens D, Atenafu E, Beyene J, Koren G, Stevens B, & Katz J. (2008). Effectiveness of sucrose analgesia in newborns undergoing painful medical procedures. *Canadian Medical Association Journal*, 179(1), 37-43.

Taddio A, Shah V, & Katz J. Reduced infant response to routine care procedure after sucrose analgesia. (2010). *Pediatrics*, 123(3), e425-e429.

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.

RELATED DOCUMENTS

Policies

[Policy #1519 – Pain Management](#)

[Policy #1745 – Skin-to-Skin Contact for Healthy Term Infants](#)

Brochures

In development

Clinical PowerPoint

Children's Healthcare Canada –

<https://ken.childrenshealthcarecanada.ca/xwiki/bin/download/Paediatric+Pain/Oral+Sucrose+Toolkit/FINAL%20Sucrose%20PPT%20Yamada.pdf>

Appendices

Appendix A – Painful Procedures for which Sucrose is indicated

Appendix B – Supportive Interventions for Infants less than 12 Months Undergoing Minor Painful Procedures

Appendix A

Painful Procedures for which Sucrose is indicated

Some minor painful procedures include:

1. Heel punctures
2. Peripheral vascular access device insertions
3. Capillary, venous, and arterial blood work
4. Nasogastric tube insertion
5. Subcutaneous or intramuscular injections (e.g. immunizations)

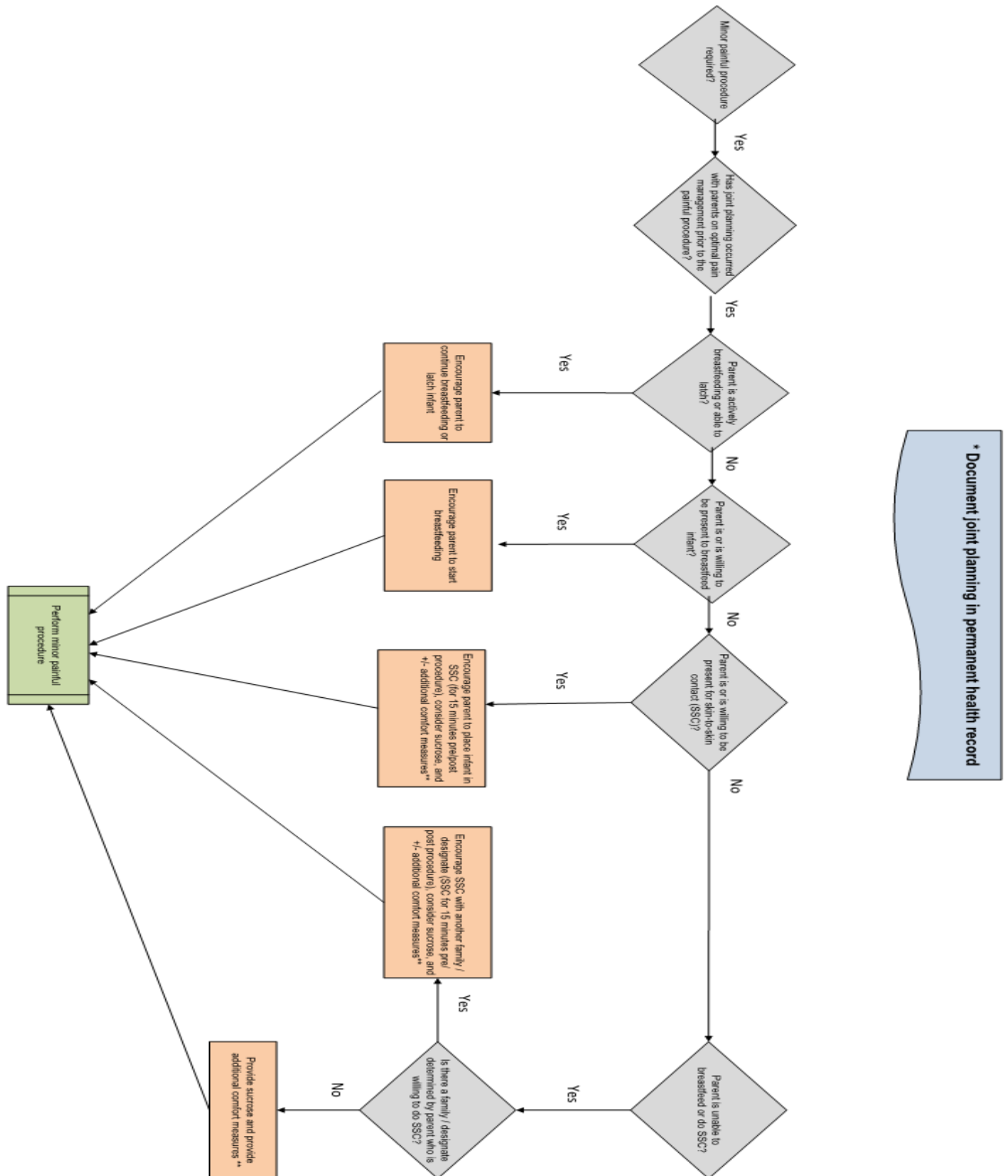
Other analgesics are often required in combination with sucrose for the following procedures:

1. Lumbar punctures
2. PICC insertions
3. Extensive eye examinations
4. Debridement
5. Suturing

***Note: This list is not exhaustive. Sucrose may be appropriate for other minor painful procedures that may not be on this list (e.g. nasopharyngeal aspirate [NPA], dressing changes, endotracheal tube suctioning, urinary catheter insertion, etc.).

Appendix B

Supportive Interventions for Infants less than 12 Months Undergoing Minor Painful Procedures



District Health Authority/IWK Policies Being Replaced

Version History

(To Be Completed by the Policy Office)

Major Revisions (e.g. Standard 4 year review)	Minor Revisions (e.g. spelling correction, wording changes, etc.)
2019	Feb 4, 2021- Correction of MLT, MLA's added