NICU: Cerebrospinal Fluid (CSF) Collection: Assisting

Site Applicability

Indicate where this guideline is applicable e.g. All PHC sites or SPH ONLY also indicate if restricted to specific areas or populations.

Skill Level:

Specialized: RN NICU

Clinical Indication:

Indicate what patients or circumstance this guideline applies to

Need to Know

A lumbar puncture (LP) is a procedure that removes a small amount of CSF to diagnose or follow a CNS infection (e.g. meningitis, encephalitis), including congenital infections (TORCH infections, rubella, cytomegalovirus and herpes simplex infections, as well as bacterial and fungal infections.

Lumbar punctures will only be performed by Physicians

- The physician inserts the spinal needle and obtains the specimen
- The RN provides assistance with the procedure and is responsible for sending the specimen to the laboratory.
- Infants who are not already receiving continuous cardio-respiratory monitor & pulse oximetry will require monitoring during procedure.

PRACTICE GUIDELINE

Equipment & Supplies:

1. Disposable lumbar puncture tray
2. Additional LP needles # 24G
3. Sterile gown and gloves for physician
4. Cap and mask for all personnel assisting with the procedure
5. Sterile towels
6. Chlorhexidine gluconate 0.5% untinted solution
7. Band-Aid, small round

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8. 3 or 4 CSF patient labels.
9. Requisitions on-line (CSF chemistry, CSF cell count/diff, bacteriology and virology).
10. Appropriate pacifier

Procedure:

Steps	Rationale
1. Minimize handling prior to the procedure.	Before any painful procedure, minimizing handling can cause heightened activity in non- receptive (pain) pathways and decrease discomfort.
2. Place Lumbar Puncture Cart at bedside.	To have all supplies easily accessible
3. Perform hand hygiene and assemble Equipment.	
4. Confirm correct infant using 2 unique identifiers	
5. Cap and mask (both doctor & nurse).	
6. Assist physician to gown and glove	
7. Open tray using aseptic technique.	A LP is a sterile procedure
8. Add to sterile tray a. Chlorhexidine 0.05% solution b. Sterile towels	
9. Provide warm towels for infant to maintain thermoregulation.	
10. Provide pain management	Local anesthetic may be more uncomfortable than efficiently performed procedure. Offer pacifier and containment.
11. Position and restrain infant as illustrated. Left lateral decubitus position. Avoid neck flexion as that leads to upper airway obstruction. Some physicians prefer the infant in a seated position because subarachnoid space is greater and airway protection is easier, the legs should be straightened. Ensure the sterile drapes leave the infants face visible	

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Steps	Rationale
12. Ensure site is aseptically prepared Clean/prepare site with Chlorhexidine 0.05% solution using side-to-side motion for **30 seconds**. Allow to air dry for **60 seconds.**	
13. Hold baby very still while monitoring for colour changes and cardio- respiratory instability during the procedure.	Increased oxygen, stimulation to cry, assisted ventilation, and / or termination of the procedure may be necessary if the baby becomes apneic, bradycardic, or hypoxemic.
14. Assist doctor with CSF collection as needed. Send tubes **cleanest to clearest.** • Culture • Chemistry • Cell count, and • Virology (if required)	For routine investigations 5 to 6 drops of CSF is needed in each tube
15. Apply pressure over the area with sterile gauze until any flow of CSF has stopped.	
16. Apply band-aid to site.	Leave dressing in place for at least 24 hours to avoid peak adherence and skin injury with removal.
17. Position infant to allow for monitoring of CSF leakage	Assess for complications of LP; • Infection
18. Perform hand hygiene	
19. Label specimens. Submit requisitions on-line Ensure tubes are numbered to identify the sequence in which they were obtained CSF specimens are taken to the lab by the ward aide	

Documentation:

On NICU nursing flow sheet:

1. Time
2. Number of attempts
3. Colour of CSF
4. Name of physician

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5. Infants response to the procedure
6. Lab tests requested

References:

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2. Greenberg RG, Smith PB, Cotten CM, et al. Traumatic lumbar punctures in neonates: test performance of the cerebrospinal fluid white blood cell count. Pediatr Infect Dis J 2008; 27:1047.
3. Lumbar Puncture (Neonatal) Elsevier Clinical Skills (2016). St. Louis, MO. Elsevier. Retrieved August 16 2017 from www.elsevierskills.com
4. Gardner, S., L., Carter, B., S., Enzman-Hines, M., Hernandez, J., A. (2011). Merenstein & Gardner's Handbook of Neonatal Intensive Care 7th edition. p247. Mosby Elsevier. St. Louis, MO
MacDonald,M.,G., Ramasethu, J.,Rais-Bahrami, K., (2013) Atlas of Procedures in Neonatology (5th ed. pp 104-108) Philadelphia: Wolters Kluwer/ Lippincott Williams & Wilkins

Persons/Groups Consulted:*

Pediatrician lead

RN, NICU

Developed By:

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Approved By:

Professional Practice Standards Committee

Maternity Safety Quality Council

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Questions, concerns, comments about PHC guidelines can be emailed to: nursingstds@providencehealth.bc.ca