Saskatoon Health Region	Policies & Procedures Title: **LUMBAR PUNCTURE: ASSISTING WITH AND PATIENT CARE - PEDIATRICS AND NEONATAL** Number**: 1034**
Authorization: [X] SHR Nursing Practice Committee	Source: Nursing Date Revised: Date Effective: March 2012 Scope: **Saskatoon City Hospital** **Royal University Hospital** **St. Paul's Hospital**

1. **PURPOSE**

1.1 To obtain Cerebral Spinal Fluid (CSF) specimen for diagnostic studies

1.2 To measure intracranial pressure and remove CSF to prevent increased intracranial pressure

1.3 To administer medications, such as intrathecal chemotherapy

2. **POLICY**

2.1 The RN will assist the RN(NP)/ Physician as required with lumbar puncture in SHR in-patient settings and ER departments. Appropriate health care professionals to perform procedure and monitoring must be available.

2.2 Lumbar puncture is contraindicated for patients with significant increased intracranial pressure due to risk of cerebral herniation. A CT scan may be required prior to procedure to assess.

2.3 Coagulation problems, bleeding disorders or infection of skin overlying puncture site may also be contraindications for procedure.

2.4 Ideally patient should be NPO prior to procedure:

2.4.1 Infants for at least 1 hour prior to procedure

2.4.2 Children/adolescents for 4 hours prior to procedure

2.5 Administer appropriate analgesic, sedation and utilize non-pharmacological comfort measures (ex: 24% sucrose) as ordered/appropriate. Topical anesthetic agents may be ordered.

2.6 Sterile technique must be maintained during procedure and appropriate personal protective equipment must be utilized

2.7 Decision regarding necessity of consent is made by the physician/RN(NP) performing procedure. Prior to procedure, the child/parents/guardians should be given information/teaching about the procedure as appropriate to situation and how they may assist during procedure.

3. PROCEDURE

3.1 Supplies:

- Sterile gown and gloves
- Masks with face shield
- Pediatric Lumbar Puncture Tray (contains 22 g 1½ inch needle) or Adult Lumbar Puncture Tray (contains 20 g 1.5 inch needle)
- Additional Lumbar Puncture needles (as requested)
  - Neonates : 25 gauge 1 inch (25mm) or butterfly
  - Pediatrics: 22 g 2½ inch (63mmm) or 20 g 3½ inch (88.9mm)
- Chlorhexidine antiseptic solution
- Sterile Normal Saline solution
- Sterile marker and labels
- Additional sterile specimen tubes
- Specimen requisitions as ordered

Note: *if measurement of opening intracranial pressure required, obtain manometer for SPD.*

3.2 Ensure proper patient identification using at least 2 patient identifiers. Prepare specimen requisitions as ordered, ensuring correct patient identification.

3.3 Patient monitoring:

3.3.1 Topical and Local Anesthetic agents: ECG. BP and SpO2 monitoring per unit specific standards and patient status.

3.3.2 Procedural sedation/analgesic : See SHR Policy #1121

3.4 Wash hands and don personal protective equipment.

3.5 Provide non-pharmacological procedural pain management as appropriate (ex: 24% sucrose) and pharmacological agents as ordered.

3.6 Open sterile gown and gloves for the physician/RN (NP).

3.7 Open LP tray maintaining sterility of contents. Pour Chlorhexidine and sterile Normal Saline into proper containers. Add needle to tray as requested. Provide sterile marker/labels for physician/ RN (NP) to label solutions.

3.8 Position Patient

3.8.1 Neonates – if infant in bassinet, transfer to open care bed for procedure and position as below.

3.8.2 Pediatrics – position infant/child at edge of bed or stretcher with side rail down. Note: Health care personnel must remain at bedside once side rail down to ensure safety of infant/child.

3.8.2.1 Position infant/child in lateral recumbent position with knees and neck flexed toward chest (fetal position). RN/LPN to assist infant/child in maintaining this position.

3.8.2.2 Older children may be positioned sitting on edge of bed/stretcher with trunk flexed forward, shoulders supported by RN or other health care professional.

3.8.2.3 Parents/guardians should not perform positioning functions, but may provide comfort and support during procedure as appropriate.

3.9 RN, RN (NP) or physician is required to monitor infant/child vital signs and neurological status during procedure and one RN/LPN to assist physician/RN (NP) as required per Pediatric Procedural Sedation/Analgesic Guidelines (SHR #1121) or unit specific standards.

3.10 Antiseptic solution may be washed from site with sterile saline by physician/RN (NP) prior to application of sterile dressing/band aid.

3.11 Label specimens at bedside and ensure appropriate requisitions completed. Specimens usual sent for the following:

Specimen #1 C &S (Microbiology)
#2 protein and glucose (Chemistry)
#3 cells (Hematology)
#4 Virology and PCR as requested.
Additional tubes of CSF may be required for acid fast bacilli (TB lab), metabolic studies, etc.

Note: CSF specimens can not be sent to the hospital laboratory via the pneumatic tube system as destroys cells. Call the Lab Porter to transport specimen stat.

3.12 Document:

- Nurses Notes: Date, time, procedure done, color of CSF, opening pressure (if applicable), specimens sent, patient tolerance of procedure, and appearance of site/dressing
- On Patient Careplan: date and specimen's sent
- Physician/RN(NP): document procedure
- MAR: RN, RN(NP), Physician to document medications given (i.e. local anesthetic agents, interthecal chemotherapy) with double signatures for medication checks per unit policy

3.13 Post Procedure Care

3.13.1 Monitor vital signs and neurological status per Pediatric Procedural Sedation/Analgesic policy or unit specific guidelines.

3.13.2 Assess LP site for bleeding or CSF leak every 15 minutes for one hour. Maintain patient in supine position for 1 hour or as ordered. (There is no evidence that extended supine positioning or bedrest prevents post-LP headache).

3.13.3 Assess for presence of headache and nausea. Administer analgesic and antiemetic as ordered.

3.13.4 Report to physician/NNP-significant changes in vital signs or neurological status, including pupillary changes, swelling, bleeding or CSF leak at LP site, tingling or loss of sensation/function of lower limbs, changes in bowel or bladder control, headache or nuchal pain or rigidity.

4. REFERENCES

Elkin, M. K., Perry, A. G., & Potter, P. A. (2004). Chapter 15: Diagnostic Tests in *Nursing Interventions & Clinical Skills*. Mosby: St. Louis

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

MacDonald, M. and Ramasethu, J. (2007). *Atlas of Procedures in Neonatology* p.99- 103. Lippincott Williams & Wilkins: Philadelphia

Sorscher, M. A. (2008). Lumbar Puncture: Assist in J. Trivits Verger & R. M. Lebet, AACN Procedure Manual for Pediatric Acute and Critical Care, (pp 607-618). St. Louis: Saunder Elsevier.