	<p>Policies & Procedures</p> <p>Title: VENTRICULAR SHUNTS/RESERVOIRS TAPPING & PERCUTANEOUS VENTRICULAR PUNCTURE: ASSISTING WITH - PEDIATRIC & NEONATE PATIENTS</p> <p>Number: 1036</p>
<p>Authorization:</p> <p>[X] SHR Nursing Practice Committee</p>	<p>Source: Nursing</p> <p>Date Revised:</p> <p>Date Effective: March 2012</p> <p>Scope: Royal University Hospital Saskatoon City Hospital St. Paul's Hospital</p>

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1. PURPOSE

1.1 Ventricular Peritoneal Shunt/Ommya Reservoir Tap

- May be performed to:
- To obtain Cerebral Spinal Fluid (CSF) specimen for diagnostic studies such as culture and sensitivity, protein or metabolic panel
- To remove CSF to prevent increased intracranial pressure
- To evaluate shunt function
- To administer medications, such as antibiotics or chemotherapy agents

1.2 Percutaneous Ventricular puncture

- May performed as an emergent procedure in infant with open cranial sutures to prevent increased intracranial pressure from conditions such as hydrocephalus or ventricular peritoneal (VP) shunt malfunction.

2. POLICY

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

2.1.1 Contraindications to procedure include coagulopathy, skin infection around shunt bulb/reservoir area, or collapsed or slit ventricles.

2.2 Ideally patient should be NPO prior to procedure:

2.2.1 Infants for at least 1 hour prior to procedure

2.2.2 Children/adolescents for 4 hours prior to procedure.

- 2.3 Administer appropriate analgesic as ordered and non-pharmacological comfort measures.
- 2.4 Sterile technique must be maintained during procedure and appropriate personal protective equipment must be utilized.
- 2.5 Decision regarding necessity of consent is made by the physician/RN (NP) performing procedure. Prior to procedure, the parents/guardians should be given information/teaching about the procedure as appropriate to situation.

3. PROCEDURE

- 3.1 Ensure proper patient identification using at least 2 patient identifiers. Prepare specimen requisitions as ordered, ensuring correct patient identification.
- 3.2 Provide non-pharmacological procedural pain management as appropriate (ex: 24% sucrose) and pharmacological agents as ordered.

3.3 Patient monitoring

- 3.3.1 With Topical and Local Anesthetic agents: ECG, BP and SpO2 monitoring per unit specific standards and patient status.
- 3.3.2 With Procedural sedation/analgesic : See SHR Policy # 1121

3.4 VP Shunt/Ommya Reservoir Tap (Appendix A)

3.4.1 Supplies:

- Sterile gown and gloves
- Masks with face shield
- Needles: Neonates : 25 gauge butterfly needle;
Pediatrics: 23 gauge butterfly needle
- Chlorhexidine antiseptic solution
- 10mL & 5 mL syringe
- Sterile specimen tubes
- Specimen requisitions as ordered

Note: If measurement of opening intracranial pressure required, obtain manometer from SPD.

- 3.4.2 VP shunt reservoir usually located in Rt occipital area. Ommaya reservoir usually located in Rt frontal area. Palpate area to locate bulb. Clipping hair over area may be needed for procedure. Avoid shaving hair from area.
- 3.4.3 Wash hands and don personal protective equipment.
- 3.4.4 Open sterile gown and gloves for the physician.
- 3.4.5 Position Patient supine with head turned to slightly to Left or as directed by physician/ RN (NP) performing procedure.
- 3.4.6 Assist physician/RN (NP) as required.

- 3.4.7 Physician/RN (NP) will cleanse area then introduce butterfly needle into bulb of reservoir at slightly oblique angle, observing for CSF flow into tubing. If no spontaneous flow of CSF, gentle aspiration of CSF may be performed with a 5 or 10 mL syringe. Physician/RN (NP) will place CSF in specimen tubes as appropriate.

Caution: if CSF difficult to obtain, shunt may be occluded or ventricles collapsed- aborting procedure is necessary.

- 3.4.8 Physician/RN (NP) may inject antibiotic or chemotherapy agent if required.
- 3.4.9 Physician/RN (NP) will withdraw needle and place gentle pressure over site.

3.5 Percutaneous Ventricular Puncture

3.5.1 Supplies:

- Sterile gown and gloves
- Masks with face shield
- Sterile surgical towels/drapes
- Needle: 22 gauge spinal needle
- Chlorhexidine antiseptic solution
- Sterile specimen tubes
- Specimen requisitions as required

3.5.2 Mask and wash hands.

3.5.3 Open sterile gown and gloves for the physician.

3.5.4 Position patient supine or as requested by physician/RN (NP) performing procedure.

3.5.5 Clipping hair over area may be needed for procedure. Avoid shaving hair from area.

3.5.6 Assist physician/RN (NP) as required. Physician/RN (NP) will cleanse area, and then puncture scalp and dura via anterior fontanelle with spinal needle to aspirate CSF. Physician/RN (NP) will withdraw needle and place gentle pressure over site.

3.6 Following procedure

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

3.7 Monitor vital signs and neurological status per Procedural Sedation/Analgesic Guidelines Policy (SHR Tri-site Client Care Policy #1121) or per unit specific standards.

3.8 Label specimens and fill out appropriate requisitions.

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 cannot be sent to the hospital laboratory via the pneumatic tube system as destroys cells. Call the Lab Porter to transport specimen stat.

3.9 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 Care Plan: date and specimen's sent
- Physician/RN(NP) Progress Notes: document procedure
- MAR: RN, RN (NP), Physician to document medications given (i.e. local anesthetic agents, inter thecal chemotherapy) with double signatures for medication checks per unit policy.

3.10 Post Procedure Care

- 3.10.1 Monitor vital signs and neurological status per Pediatric Procedural Sedation/Analgesic policy or unit specific guidelines.
- 3.10.2 Assess puncture site for bleeding or CSF leak every 15 minutes x 1 hour. Maintain patient in supine position for 1 hour or as ordered.
- 3.10.3 Assess for presence of headache and nausea. Administer analgesic and antiemetic as ordered.
- 3.10.4 Report to physician/RN(NP) -significant changes in vital signs or neurological status, including pupillary changes, hypertension, bradycardia or decreased respiratory rate (Cushing's triad), swelling, bleeding or CSF leak at puncture site or headache.

4. REFERENCES

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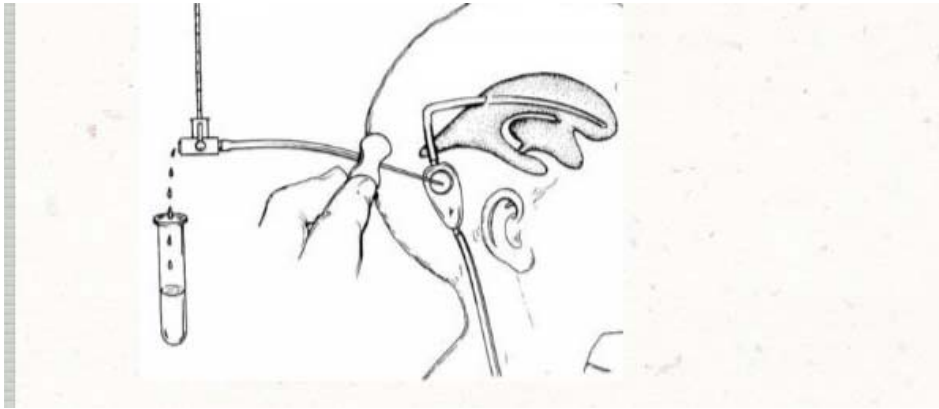
Appendix A

Diagrams of Ventricular Shunt and Ommaya Reservoir Tap

Ventricular Shunt Tap

Taken from:

http://web.me.com.smfaxmd/Ped_Emergency_Medicine_Morsels/2011/Entries?2011/9/16



Ommaya Reservoir

Taken from http://www.cw.bc.ca/library/pamphlet/search_view.asp?keyword=373

What is an Ommaya Reservoir?

An Ommaya reservoir is a channel through which fluids can be put into, or removed from, areas in the brain or spinal cord.

It has two parts:

1. a small dome shaped container that is put under the scalp or spine.
2. a small tube (catheter) leading off from the dome.

The end of the tube may be directed into:

- A cyst in the brain or spinal cord
- One of the 4 spaces in the brain called "ventricles" The cells in the ventricles produce Cerebral Spinal Fluid (CSF). The CSF flows around the brain and spinal cord to provide a protective cushion. CSF has nutrients that feed the brain.
- The space in which CSF flows around the spinal cord (subarachnoid space).

