1.0 Introduction

Patients with hydrocephalus requiring cerebrospinal fluid diversion via a shunt were identified as a population that Neurosurgery cared for that required streamlining of care due to high volumes and complications such as infection which were relatively high compared to other procedures. This clinical practice guideline has been updated to reflect emerging changes in evidence (initial document developed 1997/98).

Target Population

- Inclusion: (May include cysto-peritoneal shunting and subdural peritoneal shunts)
- Infant/child with hydrocephalus requiring 1st shunt intervention.
- Child with existing shunt for hydrocephalus management.
- Newborn to 18 years of age with signs/symptoms of shunt malfunction (i.e. nausea/vomiting, headache, lethargy, irritability &/or altered level of consciousness (LOC))

Target Users

- All health care providers who may encounter a patient with a shunt or requiring a shunt.

2.0 Definitions

- **Shunt**: Referring only to a ventricular-peritoneal shunt
- **Shunt Revision**: Surgical replacement or change to an existing shunt
3.0 Clinical Practice Recommendations

Ventricular Peritoneal Shunt Insertion or Revision

### Pre-Admission
- History & physical assessment (including tandem gait assessment and head circumference if less than 18 months old)
- CT scan or MRI (new diagnosis should have a full MRI, whereas a follow-up MRI was done in this case)
- Abnormal or asymptomatic shunt components out of place (considered to be necessary when planning surgery)
- Abnormal ultrasound (ventriculostomy insertion, abdominal symptomatic)
- Pregnancy screening as per policy
- German SVS, SPC, Stuttering Pathology
- Ongoing care following OB, Chorioretinopathy, Hypothyroidism, and Type 1 DM

### Admission/Operative
- Neurological Vital Signs Q 1-4h
- Head circumference Q 1-4h
- Monitor for signs & symptoms of intracranial IOP
- Neurosurgeons to review clinical results (consult appropriate venues if any abnormality)
- Pre-op baring as per policy pre-op baring policy

### Consults
- Neurosurgery consult once investigations completed
- Use intranasal and famly team approach
- Review needs based on Rational
- Inform patient and family
- Document plan of care

### Admission, Monitoring, Consults and Investigations
- Baseline Impregnated stents or IF Biodegradable is available
- Regular chest x-ray with Anticoagulation Injection
- Lab values
- Nutritional support
- Physical therapy
- Occupational therapy
- Speech therapy
- Social Work

### Admission, Monitoring, Consults and Investigations
- Baseline Impregnated stents or IF Biodegradable is available
- Regular chest x-ray with Anticoagulation Injection
- Lab values
- Nutritional support
- Physical therapy
- Occupational therapy
- Speech therapy
- Social Work

### Expected Date of Discharge: Post-op Day (POD) # 2

### Post-op
- Neurological Vital Signs Q 1-4h
- Head circumference Q 1-4h
- Monitor for signs & symptoms of intracranial IOP
- Head circumference Q 1-4h
- Head circumference Q 1-4h
- Head circumference Q 1-4h
- Head circumference Q 1-4h

### Imaging
- CT scan
- Fluoroscopic or head ultrasound depending on child's age

### Discharge
- Vital signs and Neurological Vital Signs are discharge
- Head circumference
- Other signs and symptoms of increased IOP
- Child and family educate on postdischarge care
- Ensure patient has a bowel movement
- Indication assessed

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### Ventricular Peritoneal Shunt Insertion or Revision

**Version: 3**

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### Ventricular Peritoneal Shunt Insertion or Revision

**Document Scope:** Hospital-wide Patient Care  
**Document Type:** Clinical Practice Guideline  
**Approved on:** 2021-09-15  
**Next Review Date:** 2022-09-15  
**Version:** 3

#### Pre-operative Teaching:
- Review child & family’s knowledge base
- Provide hydrocephalus information [www.douglashealth.ca](http://www.douglashealth.ca)
- Review/distribute information [www.gidinistry.ca](http://www.gidinistry.ca)
- Orientation to Ward and Routine (both family and child)
- Discharge Preparation

#### Post-operative Teaching:
- Wound to remain dry for 10 days
- Fundamentals on day 5
- To be notified if any leakage noted from shunt
- Expected bruising
- Wound care teaching to family
- Signs and symptoms of infection
- Review/Provide short measure/education [www.douglashealth.ca](http://www.douglashealth.ca)
- Review/Provide home health information [www.douglashealth.ca](http://www.douglashealth.ca)
- Follow-up appointment (if imaging squared)
- Discharge verbalizes awareness and understanding of plan of care post-discharge
- If child has a programmable valve:
  - MNP to document setting and ensure families are aware of programmable valve, current setting and MNP restrictions
  - RN to reinforce teaching
  - Provide family with a Patient Data card

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2. Dr. Mandeep Tamber MD, PhD, FRCSC: Assistant Professor, Pediatric Neurosurgery University of Pittsburgh School of Medicine Children’s Hospital of Pittsburgh

5.0 References

5. Institute for Health Care Improvement. Getting Started Kit: Reduce Surgical Complications How to Guide. 1997;1


Attachments:

Shunt protocol.pdf

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