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

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**3.0 Clinical Practice Recommendations**

**Printable version**

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Ventrical Peritoneal Shunt Insertion or Revision

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

**PRE-ADMISSION**
- History & physical assessment (including fontanelle assessment and head circumference if less than 10 months)
- CT scan or MRI (new diagnosis should have a full MRI, otherwise could just be FAST MRI to assess ventricular size) Head Ultrasound (if infant and clinically appropriate)
- Shunt series if CT/MRI or US is minimal, abnormal or shunt components out of place. Could be targeted/serial shunt series looking at specific area if recent revision
- Abdominal ultrasound (recent shunt insertion, abdominal examination)
- Pregnancy screening as per policy: Prematurity, Screening Prenata
- Routine labs including CBC, ESR, electrolytes, PT/INR, and lipids
- If suspected sepsis medical team to consider initiating empiric antibiotics
- Shunt infection should be strongly considered in patients who have had a shunt surgery within the past 6 months
- If suspected leakage medical team to consider electrolytes, vitals
- Call neurosurgery immediately if the symptoms are noted or rapidly progressive
- Pre-op feeling as per policy pre-op bathing policy
- Assess pre-operative costs and hospitalization
- Assess family understanding of plan of care

**Admission/Pre-op**
- Neurological VSQ G 1-4: assess if the patient requires bedside mental status assessment and notify if required
- If < 10 months of age, check and record fontanelle G 3-4 and head circumference daily
- Monitor VSQ & symptoms of increased ICP
- Neurosurgeon to review brainstem results (consult appropriate services if any abnormalities)
- Post-op bathing as per policy post-op bathing policy

**Intra-operative**
- Need to assess the shunt in the OR
- Lined by sign on door
- Number of people scrubbed/scrubbing not limited
- Patient position feet closer to door than head

**Post-op**
- VSQ G 3-4
- Bowel sounds Q shift
- If < 10 months of age check and record fontanelle G 3-4 and head circumference daily
- Monitor VSQ & symptoms of increased ICP
- Sydals

**Discharge**
- Vital signs and Neurological VSQ pre-discharge
- Head circumference recorded
- VSQ and symptoms of increased ICP
- Child and family instructions/pain & nausea well controlled prior to discharge
- Ensure patient has 1 bowel movement
- Instructions is assessed

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### Activity
- Activity As Tolerated

### Nutrition & Diet
- NPO or Diet As Tolerated [Anesthesia NPO guidelines](#)

### Activity
- Complete falls assessment, document in care plan and on patient record [falls and CTE guidelines](#)
- Activity As Tolerated

### Nutrition & Diet
- NPO or Diet As Tolerated [Anesthesia NPO guidelines](#)

### Activity
- Elevate head of bed as per medical order
- Activity as tolerated or bedrest as per medical team
- Encourage deep breathing and coughing exercises

### Nutrition & Diet
- Diet As Tolerated

### Dressing & Wound Care
- Neurosurgeon to wear in sheet type of closure (toga/arakata)
- Incision to remain covered for 24.48 hours post-op
- Notify MD if dressing wet or oozing from incision noted
- Change allow usual daily and per

### Fixed Management
- Discontinue IV when antibiotics completed, tolerating full fluids and no nausea and no further investigations pending (CT, MRI)

### Activity
- Activity As Tolerated

### Nutrition & Diet
- Diet As Tolerated

### Dressing & Wound Care
- Place original dressing prior to discharge, incision with 3M Pressure if required (less than 4 hours)
- Review wound care instructions
- MOPP to wearable incision prior to discharge
- If desirable sutures; instruct family that sutures will dissolve over time (~3-4 weeks)
- If staples: instructions for family MD to remove 10th day post-op
- If staples: give staple remover to family with instructions for family MD to remove 10th day post-op
- Information worker to book follow-up appointment in Neurosurgery Clinic in 6-8 weeks
- Neurosurgeon to indicate if further

### Activity
- Activity As Tolerated

### Nutrition & Diet
- Diet As Tolerated

### Dressing & Wound Care
- Patient to be using moderate amounts with no strain and maintaining hydration prior to discharge

### Fixed Management
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### Activity
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### Nutrition & Diet
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### Dressing & Wound Care
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### Fixed Management
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**Post-operative teaching:**
- **Return to normal activity:**
  - No lifting, bending, or lifting of objects.
- **No school:**
- **No heavy lifting:**
- **No sudden movements:**
- **No swimming:**
- **No contact sports:**
- **No overnight hospital stay:**

**Follow-up:**
- **Follow-up appointment:**
- **Check with family:**
- **Check with doctor:**
- **Check with nurse:**
- **Check with pharmacist:**

**Discharge instructions:**
- **Medication reconciliation:**
- **Medication reconciliation policy:**
- **Analgesic ordered:**
  - As needed
  - For pain
- **Anti-emetic ordered:**
  - For nausea
- **Nutrition:**
  - Full liquid diet
  - Advance to regular diet as tolerated

**Other:**
- **Review with family:**
- **Review with physician:**
- **Review with pharmacist:**
- **Review with nurse:**
- **Review with dietitian:**
- **Review with social worker:**
- **Review with physical therapist:**
- **Review with occupational therapist:**
- **Review with speech therapist:**
- **Review with psychologist:**
- **Review with pediatrician:**
- **Review with pediatric nurse practitioner:**
- **Review with pediatric resident:**

**Discharge letter:**
- **Discharge letter policy:**
- **Discharge letter guidelines:**
- **Discharge letter format:**
- **Discharge letter content:**
- **Discharge letter signature:**

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**Ventricular Peritoneal Shunt Insertion or Revision**

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**References:**
- **References policy:**
- **References guidelines:**
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**Acknowledgments:**
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**Contact Information:**
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**Supplementary Materials:**
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- **Disclaimer content:**
- **Disclaimer signature:**
4.0 Guideline Group and Reviewers

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5.0 References


Attachments:

Shunt protocol.pdf
ventricular shunt_CPG_September 2021.pdf