

Background

- A Ventriculoperitoneal (VP) shunt is a medical device used to treat hydrocephalus by diverting excess cerebrospinal fluid from the brain's ventricles to the abdominal cavity, where it can be absorbed.
- Patients with VP shunts are at increased risk of infection due to the direct connection to the central nervous system.
- Proper hair and scalp hygiene is essential to reduce microbial load around the shunt site.

Boston Children's Hospital Infection Prevention & Control		SSI Prevention Bundle (SSI = Surgical Site Infection)	
The following are the core evidence-based practices to prevent SSI. All of these elements should be followed on all patients undergoing surgery.			
1. Bathe patients pre-operatively <ul style="list-style-type: none"> • Ask patients to shower or bathe at least one time the night before or day of surgery with soap or antiseptic agent (e.g., chlorhexidine or ReadyBath Cleansing Cloth Wipes). • Patient undergoing procedures of the head <ul style="list-style-type: none"> ◦ Ask patients to shampoo the night before or the day of surgery* 			
2. Prep the skin with an alcohol-containing pre-op skin prep agent <ul style="list-style-type: none"> • CHG-alcohol (ChlorPrep™) is our preferred agent (DuraPrep™ is an approved alternative). • Use back-and-forth strokes from the incision site outward: 30 second scrub for dry sites, 2 minutes for moist sites (DuraPrep™ Paint: don't scrub, move outward and don't go over area twice). • Allow to dry for 3 minutes on hairless skin (both agents may take up to 1 hour to dry in hair). • Tinted ChlorPrep™ is contraindicated for procedures involving mucosa, cornea, or ear and for infants < 2 months of age. 		Prepped area (including hair) must be completely dry!	
3. Use clippers for hair removal <ul style="list-style-type: none"> • Only remove hair that will interfere with the operation. • Do not use razors in the OR. 			
4. Perioperative antibiotic prophylaxis <ul style="list-style-type: none"> • Use antibiotic prophylaxis for selected procedures according to the BCH guideline. • Administer the pre-operative dose 0-60 minutes prior to incision. <ul style="list-style-type: none"> ◦ 0-120 minutes for vancomycin or fluoroquinolones. • Re-dose intraoperatively at recommended interval (according to BCH guideline). • Discontinue the antibiotic when the incision is closed. <ul style="list-style-type: none"> ◦ Most procedures require no post-op doses, even in the presence of a drain. 		Complete pre-op antibiotic dose before incision. Post-op doses do not reduce SSI risk!	

Last updated 3/15/2022

Figure 1: SSI Bundle Factsheet

Description of Project

- Review current hair-washing policy within perioperative services
 - No pre-op hair-washing occurring in the OR
- Review current SSI prevention bundle (Figure 1), which includes direction to hair wash at home the day before
- Identify gaps and variability in preoperative hair-washing practices, including how they were assessed
- Review staff readiness including knowledge, comfort, and workflow feasibility
- Describe safety considerations and product availability for chlorhexidine gluconate use
- Assess documentation processes and readiness for SSI bundle integration

Purpose

- Align hair-washing practices for VP shunt patients with current institutional policy and neurosurgical guidelines (Figure 2 and 3), including timing post-op, incision considerations, and provider-specific restrictions
- Review and update staff education components, including didactic review, product knowledge, return demonstration, and competency validation
- Specify chlorhexidine gluconate use, including indications, correct application technique, required contact time, avoidance of eyes/ears/incisions, and contraindications such as age limits, skin sensitivity, or allergy
- Establish a standardized supply list for hair-washing, including chlorhexidine product, towels, basin, protective barriers, and PPE, with visual reference available for consistency
- Reinforce consistent documentation and communication to support continuity of care and reduce infection risk

Key Points/Project Highlights

- Updated hair-washing protocol using chlorhexidine gluconate, including gentle cleansing technique and adherence to product guidelines
- Prioritize continuous protection of the VP shunt site, avoiding direct pressure, excessive scrubbing, or disruption of the incision
- Monitor the patient during and after washing for discomfort or adverse skin reactions, with escalation as needed
- Incorporate hair-washing into standard VP shunt preparation workflow with consistent documentation in the medical record
- Reinforce this as a standardized practice to improve nurse confidence and support safer, more consistent patient care

Next Steps

- Standardize VP shunt hair-washing practices per institutional and neurosurgical guidelines, including timing and incision considerations
- Continued education of staff on chlorhexidine gluconate use, including technique, precautions, contraindications, and competency validation
- Establish a defined supply set and provide clear patient and family education for consistent care at home
- Implement and monitor policy with compliance metrics, tracking pre- and post-implementation adherence and infection rates
- Sustain through ongoing evaluation, retraining, and integration into orientation and annual competency review

SURGICAL SAFETY	
Checklist for VP Shunt Surgery	
Before	Skin Prep:
	<input type="checkbox"/> Surgeon scrubs surgical incision site with Hibiclens scrub
After Surgical Safety Timeout:	
Circulating Nurse	
Reads and confirms:	
	<input type="checkbox"/> Sign posted on the OR doors to limit OR traffic
	<input type="checkbox"/> Ensure operating room doors closed (303, 304, etc)
	<input type="checkbox"/> Number of OR personnel minimized
	<input type="checkbox"/> Loban in place
	<input type="checkbox"/> Scrubbed personnel double gloved
	<input type="checkbox"/> Antibiotic-impregnated catheter considered
	<input type="checkbox"/> Shunt packaging ready to be open at the last minute
	<input type="checkbox"/> New gloves ready (for glove change after draping)
Before	Closing
Circulating Nurse	
	➤ Prompt surgical team to pause
Circulating Nurse	
Reads and confirms:	
	<input type="checkbox"/> Please cover wound before taking down drapes

Figure 2: VP Shunt Surgery Checklist

NEURO SHUNT HAIR CLEANING KIT and INSTRUCTIONS:	
1.	Shave surgical area
2.	Wash surgical area prior to prepping: <ol style="list-style-type: none"> a) open prep pack, pour Hibiclens into cup Pour alcohol into separate cup b) 3x3 sponges start with Hibiclens shampoo c) wash Hibiclens away with alcohol d) pat dry with towel
3.	Prep surgical area in the usual manner.

Figure 3: Neurology Shunt Hair-washing Instructions