



## **SECTION 9: WOUND CARE**

### **9.8 Drains and Fistulae**

#### **9.8.2 Wound Drainage Systems: Open and Closed**

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## Aims

To remove body fluids, preventing an accumulation of fluid and promote optimum wound healing

## Background

A drain describes any material or equipment used to prevent the formation of a haematoma or to carry fluid from inside the body to the surface. Allowing unwanted fluid or blood to remain in a wound may be a potential source of infection and may also impede healing, or result in wound breakdown and dehiscence.<sup>1</sup>

Wound drainage systems are classified as open, closed or suction and are selected according to the patient's needs.<sup>2</sup>

## Key Points

- To reduce the risk of infection, use aseptic non touch technique for all procedures which involve manipulation of the drain, cleansing and dressing of the wound site, emptying drainage containers and removal of the drain.<sup>3</sup>
- Consider pain management and comfort measures prior to all wound care and removal of wound drains.
- Removal or shortening of drains should only be performed after documented instruction by the treating clinician.
- Wound drainage will be monitored for colour, consistency, volume and patency. Report any sudden change in colour, cessation or leaking around the drain to the treating medical team.<sup>2</sup>

## Equipment

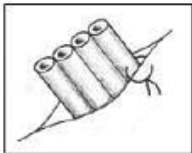
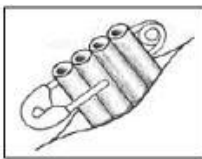
- Refer to ANTT® [Wound Care Protocol](#) for personal protective equipment and trolley set up.
- Use sterile gloves when cleansing and dressing the wound and for manipulation of the drainage system.
- 0.9% sodium chloride is the recommended solution for wound cleansing.<sup>4,5</sup>
- Dressing pack
- Appropriate dressings and/or reservoir/container
- Waste bag
- ± stitch cutter

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### OPEN Drainage Systems (eg. Yeates,<sup>®</sup> Penrose,<sup>®</sup> T-tube)

- Inserted directly into the wound bed allowing passive drainage into an absorbent dressing. As this drain has an open end there is increased potential for infection. Avoid the dressing becoming saturated and change as required.
- The drain may be sutured in place. A sterile safety pin is usually attached to the drain close to the skin preventing the drain slipping back into the wound.

### Shortening or Removal of an Open Drain

Steps	Additional Information
Using aseptic non touch technique, prepare trolley and equipment. Wash hands and don PPE.	
Remove old dressing/drainage bag and discard into waste bag. Remove gloves, wash hands and don sterile gloves.	
Using each swab once only, swab the skin around the drain insertion site with sodium chloride 0.9% until visibly clean.	
<b>Shortening the drain.</b> Remove the suture if present as per PNPM <i>Removal of Sutures</i>	Pre Shortening; <sup>1</sup> 
Gently ease the drain out of the wound to the length requested by the treating clinician. <sup>4, 5</sup>	
Place a new sterile safety pin through the drain as close to the skin as possible. <sup>6,7</sup> Using sterile scissors cut the drain. <sup>6,7</sup> Leave approximately 1cm beyond the safety pin. <sup>6</sup>	Post Shortening. <sup>4</sup> 
<b>Note;</b> once a drain has been shortened it may slip out at any time; inform treating clinicians team if this occurs. <sup>7</sup>	This is not unusual or cause for undue alarm. <sup>5</sup>

Steps	Additional Information
Place a clean, appropriately sized absorbent dressing or drainage bag over the drain site. <sup>6</sup>	
<p><b>Removal of the drain</b></p> <ul style="list-style-type: none"> <li>• Remove suture if present.</li> <li>• Using a gauze swab, apply gentle counter pressure to the skin around the drain site.<sup>6,7</sup></li> <li>• While holding the drain tube securely, remove using steady traction.<sup>6,7</sup></li> <li>• Inspect the end of the drain to check it is intact.</li> </ul> <p>If resistance is encountered, stop the procedure and seek assistance from shift coordinator and/or RMO.</p>	
<p>After removal of the drain:</p> <ul style="list-style-type: none"> <li>• Clean the wound with 0.9%.sodium chloride.</li> <li>• Apply steristrips if continued supplemental support required.<sup>8</sup></li> <li>• Apply an absorbent dressing to absorb exudate that may drain from the site.</li> </ul>	
Dispose of all used items in appropriate clinical waste.	
Document procedure in the patients' medical record.	


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## CLOSED Drainage Systems




- Closed drainage systems typically incorporate a suction or vacuum system to actively draw fluid from the wound to prevent accumulation, thereby minimising the risk for infection and facilitating the healing process.
- Closed systems facilitate accurate monitoring of fluid losses. Monitor volume of losses over each 24 hour period and document in the patient medical record and fluid balance chart.

## Emptying/Revaccing a Bulb Reservoir

Although the principles of vacuum drainage remain the same, always check the manufacturer's instruction prior to releasing the vacuum and for removal of the drain. These instructions refer to Jackson Pratt<sup>®</sup> bulb drains and VariVac<sup>®</sup> suction drains.

Steps	Additional Information
<b>Vacuum/Bulb Drain</b> eg. Jackson Pratt <sup>®</sup> Empty before the vacuum becomes compromised (around 1/2 to 2/3 full).	
Keeping the bulb lower than the wound, pull the plug out of the bulb to release the negative pressure vacuum. <sup>9,10</sup>	Prevents back flow. <sup>3,4</sup>
Pour fluid inside the bulb into a measuring jug. <sup>9</sup>	
Clean the plug with an alcohol wipe. <sup>9,10</sup>	
Squeeze the bulb flat and whilst flat, insert the plug back into the bulb. <sup>9</sup>	The bulb should remain flat after it has been plugged so that the vacuum can restart. <sup>9</sup>
Once procedure complete document amount of fluid drained on the patient's fluid chart.	

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Steps	Additional Information
<p><b>Suction Drain eg. VariVac™</b> A drain reservoir should be changed when full or when there is a loss of suction.<sup>6,7</sup></p>	<p>If suction is lost and reservoir is not full, attempt to revac first prior to changing.<sup>6</sup></p>
<p><b>Re-Vaccing</b> <b>Reservoir using wall suction</b> When indicator is upright making a 'U' shape the reservoir needs to be re-vacced.<sup>6,7</sup></p>	 <p>Indicator shows no vacuum in reservoir.</p>
<p>Clamp tubing and remove dust cap from re-vac valve.<sup>6</sup> Push the wall suction tubing over the re-vac valve. Release the clamp.<sup>6</sup></p>	
<p>Adjust wall to full suction and leave until indicator is fully crossed ('V').<sup>6</sup> Remove suction tubing. Release clamp and replace dust cap.</p>	 <p>Indicator shows vacuum in reservoir.</p> <p>Ensure suction remains at surgeons specification.<sup>2,5</sup></p>
<p><b>Changing a reservoir</b> Turn the dial to gravity. Clamp tubing on both sides.<sup>7</sup></p>	
<p>Swab around connection site of drain and the evacuation tube of the reservoir to be changed.</p>	<p>To maintain sepsis and decrease the risk of introducing infection when disconnecting a luer lock.</p>

Steps	Additional Information
Disconnect the reservoir and dispose into clinical waste immediately <sup>6,11</sup> Report copious drainage to the treating clinician.	
Connect the new reservoir. Adjust suction to surgeon's specification.	
Observe for suction flash to ensure tubing is patent. <sup>7</sup>	
Document volume of drainage from the reservoir on the fluid balance chart and in the patient medical record.	

### Removing a Closed Drainage System

- Remove drains only after documented instruction by the treating clinician
- For VariVac™ drains turn the suction dial to gravity for a minimum of 5 mins prior to drain removal.<sup>11</sup>

Steps	Additional Information
Administer analgesia as required.	Analgesia should be administered at least 30 minutes prior to the procedure.
Don PPE and prepare equipment using non touch technique principles.	
Following the manufacturer's instructions, clamp off/ release the suction from the drain.	Ensures patient comfort and prevents damage to underlying tissues.
Using each swab once only, swab the skin around the drain insertion site with sodium chloride 0.9% until visibly clean.	If using hands rather than forceps to hold the gauze swabs, don clean gloves.
Remove the suture if present.	Not all drains will be sutured. <sup>11</sup> Refer to <i>PNPM Removal of Sutures</i> .
Using a gauze swab, apply gentle counter pressure to the skin around the drain site. <sup>6,7,10</sup>	If necessary slightly rotate the drain tubing.

Steps	Additional Information
<p>Hold the drain tube securely and remove using steady traction.<sup>6,7</sup></p> <p>If resistance is encountered, stop the procedure and seek assistance from shift coordinator and/or RMO.</p>	
<p>Check the end of the drain is intact.</p>	<p>If tip required for pathology, use sterile scissors to cut off the tip of the drain and place immediately into specimen container.<sup>12</sup></p>
<p>Maintain pressure over the drain site with a gauze pad until bleeding/drainage is controlled.</p>	
<p>After removal of the drain, clean the wound with sodium chloride 0.9%.</p>	
<p>Apply steristrips for supplemental support if required and apply absorbent dressing.<sup>7,8</sup></p>	


<p>Related documents</p>
<p>Wound Assessment, Dressing Selection and wound Cleansing Solutions</p>
<p>Resources</p>
<p><a href="#">VariVac™ Canister In Service Videos</a></p>

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