

SESLHD POLICY COVER SHEET



Health
South Eastern Sydney
Local Health District

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SUMMARY	This document outlines the procedures to be used with NPWT wound dressings. It specifies activities to be undertaken to assess, treat and evaluate a patient's wound when NPWT is being used.

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Wound - Negative Pressure Wound Therapy (NPWT)**SESLHDPD/136****1. POLICY STATEMENT**

Negative Pressure Wound Therapy (NPWT) is used to promote wound healing by the removal of fluid and infectious materials from the wound, assist tissue granulation, decrease wound size, promote wound perfusion and promote a moist wound healing environment using continuous or intermittent negative pressure. Patients with chronic, acute, traumatic, subacute and dehisced wounds, partial-thickness burns, ulcers (diabetic, venous, arterial and pressure), skin flaps and grafts and in some cases fistulae are suitable for NPWT [1, 2, 3, 4].

2. BACKGROUND

The use of Negative Pressure Wound Therapy (NPWT) for wounds was developed independently of each other by Chanker and Jeter (1989) and also Fleischmann, Argenta and Morykwas in the 1990s. These methods consist of the application of negative pressure (usually 75 to 125 mmHg) to a foam or gauze placed inside a wound [5]. The wound is sealed with an airtight adhesive film that prevents the entry of air from the external environment. NPWT has been reported for its clinical use in a diverse range of wounds, be they acute or chronic, in patients of all ages [6].

Topical Negative pressure has the following effect on a wound [7]

- Wound retraction by the negative pressure pulling on the wound margins
- Stimulation of granulation tissue

- Maintenance of a moist wound environment

- Wound cleansing through the removal of small tissue debris by suction
- Removal of wound exudate through a closed system

- Pressure related reduction of interstitial oedema with consequent improvement of local microcirculation

3. AIMS

The aim of this policy is to ensure that NPWT for Wounds is:

- Appropriately applied

- Appropriately used

- Continually monitored during treatment.

4. TARGET AUDIENCE

All clinicians using NPWT for Wounds.

5. RESPONSIBILITIES

All Nursing and Medical Officers involved in clinical wound care.

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6. REFERENCES

6.1 External References

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[SESIAHS Area Infection Control Policy Directives](#)

[SESLHD Policy - Wound Assessment and Management](#)

[Wound Management - managing pain at dressing change](#)

[Wound Antiseptic Dressing Policy and Midwifery/Documents/SESLHDPD146-WoundAntisepticDressingPolicy.pdf](#)

7. DEFINITIONS

Antiseptic Gauze: gauze containing polyhexamethylene biguanide (PHMB)

Continuous therapy: a constant sub atmospheric pressure applied to a wound bed

Interface Dressing: a non-adherent open weave dressing eg, Atrauman, Mepitel [1]. This is placed between the wound base and the wound filler dressing.

Intermittent Therapy: a continuous cycling between low and high sub atmospheric pressure (five minutes of therapy on suction followed by two minutes without suction).

Splinting Effect:

NPWT can be used to immobilise wounds often termed splinting or stabilising effect for certain wounds eg, sternal, abdominal wounds and skin grafts [8]. Continuous therapy should be used in order to facilitate the splinting effect thus minimising movement and stabilising the wound bed.

Negative Pressure Wound Therapy (NPWT): is the use of an appropriate electric pump with a wound filler of either polyurethane foam or polyhexamethylene biguanide (PHBQ) gauze to assist wound healing using sub atmospheric pressure setting.

Incisional Negative Pressure Wound Therapy (INPWT): is the use of NPWT to aid in the prevention of the breakdown of a clean closed surgical incision.

Wound Care Expert: A person with advanced training in wound management and recognised within the facility eg, CNC Wound Care, CNC Stomal Therapy and Wound Care and Nurse Educators.

Wound Filler: is either a polyurethane foam or polyhexamethylene biguanide (PHMB) gauze used to fill the wound shape

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8. POLICY

This policy should be used in conjunction with the SESLHD Policy - Wound Assessment and Management [Wound - assessment and management](#)

- There are different brands of NPWT devices and the consumables used for each brand need to match the device chosen
- Always follow the manufacturer's guidelines for each device and wound type
- All patients using NPWT need to have their wounds appropriately assessed and managed using the Wound Assessment and Management Plan (S0056).

Wound measurements must be undertaken weekly in order to compare wound healing progress.

If there is no reduction in the size of the wound for two weeks the use of NPWT needs to be reassessed / ceased [1, 2].

The wound needs to be surrounded with enough intact skin (approximately 2cms around the wound) in order for the drape to adhere well in order to maintain the seal (vacuum) [3, 4].

Consider protection of peri-wound skin eg, use barrier wipes or hydrocolloid.

The number of pieces of wound filler used needs to be recorded on the outside of the dressing at each dressing change and in the health care records.

NPWT dressing needs to be changed every **two to four days** or more frequently in the case of infected wounds [1, 2, 4]. See Appendix A for basic NPWT dressing. The exception to this point is wounds requiring a splinting effect eg, skin grafts.

NPWT used over meshed skin grafts and flaps usually stays intact for five to seven days as per surgeons orders and should always run on continuous therapy (splinting effect).

For foot wounds post skin graft to achieve a stabiliser on Split Skin Graft area on the feet and allowed the elderly patients to mobilise with the dressing in place use a [Gauze based NPWT which uses the Chanker-Jeter technique of non-adherent gauze (Kerlix AMD) wrapped around a silicone drain and then sealed with a film dressing [9].

Contact your local wound care expert if wound requires a more complex dressing technique.

NPWT devices can be programmed to run as either **continuous** or **intermittent therapy**.

- NPWT should be run on continuous therapy optimally for the first 48 hours or until the first dressing change

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- Following the first dressing change clinicians need to assess if the negative pressure setting should be changed from continuous to intermittent therapy as intermittent therapy has been found to stimulate granulation tissue faster. For certain patient's intermittent therapy can be more painful, if not tolerated the NPWT can stay on continuous therapy [1, 2, 4].

Consider continuous therapy when there are high levels of drainage from the wound or there is difficulty maintaining a seal [1, 4].

For open abdominal wounds or where a "splinting effect" is required - continuous therapy should be used.

Documentation in the health care records by the Wound Expert or Medical Officer needs to include the rate the NPWT machine is to be set at and whether the therapy is continuous or intermittent.

All patients using NPWT need to comply with treatment i.e. NPWT needs to be maintained for a minimum of 22 hours out of 24 hours. The two non-therapy hours are used for showering and toileting [1, 2, 10].

To shower patients using NPWT:

- Disconnect the canister from the machine, keep canister upright, and canister vent dry, leave pump away from the wet area.
- Reconnect canister to pump after showering complete when patient away from wet area.
- Note for patients who are not able to have the NPWT discontinued eg, they have had removal of abdominal wall muscles; they will not be able to be showered as pump can't be taken into a wet area.

Patients with active osteomyelitis need to be receiving appropriate treatment for this (including debridement and antibiotics) when using NPWT [1, 2, 4].

Patients need to be nutritionally stable as otherwise progress with wound healing may be protracted.

A referral to a dietician for assessment is required for all patients undergoing NPWT [1, 11].

A Pressure Ulcer Risk Assessment using [Pressure Injury Prevention and Management](#) needs to be carried out on all patients using NPWT and appropriate pressure relieving devices used as per assessment [1].

NPWT can be used on incontinent patients as it is a closed drainage system [1].

NPWT can simplify wound management and progress wound healing to a point where it is suitable for such things as skin grafts/flaps or so that the patient can be discharged

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into the community using traditional dressings [1, 2, 4, 9].

NPWT can be used as Incisional Negative Pressure Wound Therapy (INPWT). This therapy is used to prevent wound breakdown in a surgical incision by splinting the wound and closing the dead space within the wound. Single use NPWT devices may be used for this therapy eg, PICO™, Pravena™ and SNAP™[13].

NPWT can be used with irrigation with the appropriate electric pump with a variety of solutions. There is a paucity of evidence around effective use of this therapy and it should therefore be used with caution under the supervision of a Wound Care Expert [14].

8.1 Special Precautions and Contraindications to NPWT

An interface dressing is recommended to be used if the patient feels pain when the NPWT dressing is being removed or applied. The setting on the NPWT machine needs to be increased if an interface dressing is used. Eg, if a NPWT machine is normally set at 125mmHg this should be increased to 150mmHg.

Appropriate **pain management** needs to be provided to all patients on NPWT. Refer to the Wound Management - Managing Pain at Dressing Change Policy.

Wounds with necrotic tissue or eschar need to be debrided prior to the application of NPWT [1, 2, 4, 8, 9].

Malignant wounds are generally not treated with NPWT mainly due to the risk of bleeding. If NPWT is used it requires careful monitoring [1, 2].

- For Fistula management and NPWT (contact Wound Care Expert)
- It is essential that all output from the wound is strictly measured for all wounds using NPWT and recorded in the patient’s health care records.

If NPWT is used for fistula management; after output is measured and monitored the patient’s blood chemistry is also monitored [12].

Special precautions need to be taken for wounds with exposed/weakened/irradiated blood vessels and/or organs.

- Use, an open weave interface dressing eg, Mepitel / Atrauman between the wound filler eg, foam and the wound bed
- An open weave interface dressing may not be needed for gauze based NPWT
- For open abdominal wounds with exposed bowel (contact Wound Care Expert) [1,2, 4, 10].

Antimicrobial wound fillers eg, Kerlix (antiseptic gauze) or Granufoam Silver (antiseptic foam) can be used for wounds that are colonised or infected post-debridement See Wound - Antiseptic Dressing Policy.

Antimicrobial dressings eg, dressings containing silver can be used underneath the NPWT dressing eg, Atrauman AG.

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Gel impregnated gauze eg, Intrasite conformable can be used underneath the NPWT dressing on sloughy wounds.

For application to the hand, advice can be sought from the Hand CNC located at Sydney Hospital and Sydney Eye Hospital (SHSEH) via page 21599.

Precautions to using NPWT need to be taken with patients with active wound bleeding, difficulty with wound haemostasis and who are taking anticoagulants or receiving anticoagulant therapy eg, dialysis patients [1, 2, 4].

All NPWT dressing should be applied in such a way that the tubing or tract pad does not increase any localised pressure on the patients wound or skin.

8.2 Transfer of patients with NPWT

When transferring patients within a Local Hospital Network with NPWT, an up-to-date wound assessment chart is required in addition to a report written in the clinical notes clearly stating how often and when the NPWT dressing needs to be changed. It also needs to be stated which wound filler and the negative pressure setting that is being used.

When transferring to another hospital the NUM/CNC needs to be contacted at the receiving hospital in order to ensure smooth transition of patient care eg, ascertain whether there is a need for the NPWT machine hired to go with the patient and any transfer of costs for NPWT care needs to be clarified.

8.3 Discharging patients from hospital with NPWT

Contact wound care expert regarding any external funding options eg private health funds, DVA.

Prior to discharging a patient into the community with NPWT the patient needs to be assessed with regards to compliance and suitability.

All patients discharged into the community with NPWT need to have a follow-up appointment for review by the discharging team.

If a patient is to be discharged with NPWT into the Community sector a portable machine needs to be organised several days in advance with appropriate consumables.

If the patient requires non-standard NPWT dressing products the relevant CH NUM should be advised prior to discharge of the patient

The Community Nurses, via their NUM, should be advised prior to the patient being discharged, to be given the opportunity to review the wound and dressing

The patient /carer needs to be able to speak and read basic English in order to read the instructions on the screen of the machine.

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The patient/carer needs to be educated in order for them to be able to perform basic trouble shooting with regards to the dressing and the machine including being able to change the canister when necessary.

All patients discharged into the community, need to have a spare canister and dressing for NPWT in case the dressing has to have an unscheduled change or the canister has to be changed.

All patients discharged into the community also be supplied with a simple traditional dressing eg, an absorbent pad in case the NPWT dressing has to be removed by the patient or carer.

Relevant phone numbers for persons coordinating NPWT in the hospital and community should be given to the patient.

Referral to Access and Referral Centre (ARC) should include the brand and model of NPWT being used, the setting used eg, whether the therapy is continuous or intermittent. Copy of most recent wound assessment and micro-organism status.

8.3.1 Discharging patients with NPWT covered by Veterans Affairs

If the patient is covered by Veterans Affairs a quote for up to four weeks rental of the machine and up to four weeks of consumables needs to be obtained from the company supplying the machine and consumables and faxed with a covering letter to Rehab appliances program (RAP) Fax:02-92137978, TEL:92137975 in order to gain funding for NPWT. The relevant nursing agency also needs to be contacted in order to do the dressings.

8.3.2 Discharging patients with NPWT covered by a Private Health Fund

If the patient is in a Health Fund they should be contacted re: funding NPWT. If they agree to fund it a quote for up to four weeks rental and four weeks consumables needs to be obtained from the relevant NPWT company and faxed to the appropriate health fund. The relevant nursing agency or community NUM needs to be contacted in order to manage the dressings.

8.4 Additional Information for Patients receiving NPWT in the community

Initially the patient must be monitored daily to determine the amount of exudate from the wound and that the machine is working properly.

CH staff must ensure the patient understands:

- how to perform basic trouble shooting with regards to the dressing and the machine including being able to change the canister when necessary
- to contact the community health nurse if any problems with NPWT during normal business hours
- to contact, the relevant hospital or their GP if any problems with NPWT if they unable to contact the community health nurse at any time
- to contact relevant NPWT company's 24 hour phone helpline if any problems with NPWT machine.

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All patients in the community need to be left with a spare canister and dressing for NPWT in case the dressing has to have an unscheduled change or the canister has to be changed.

For non-privately funded patients do not leave any other excess NPWT dressing stock in the patient home, as excess stock cannot be returned to a community health centre. All patients have to also be supplied with a simple traditional dressing eg, an absorbent pad in case the NPWT dressing has to be removed by the patient or carer.

At the completion of NPWT using rental equipment staff must:

- Clean equipment as per [Area Infection Control Policy Directives](#) eg, with neutral detergent and if know multi-resistant organism (MRO) colonisation as per facility protocol. [Management of Management of Multi-Resistant Organisms \(MROs\)](#)
- Place equipment in plastic bag, label appropriately
- Transfer equipment back to CH centre for collection
- Cancel rental agreement with NPWT company
- Arrange with company to pick up NPWT equipment

8.5 Completion of NPWT in Hospital setting

At the completion of NPWT using rental equipment staff must:

- Clean equipment as per [Area Infection Control Policy Directives](#) eg, with neutral detergent and if know multi-resistant organism (MRO) colonisation as per facility protocol. [Management of Management of Multi-Resistant Organisms \(MROs\)](#)
- Place equipment in plastic bag, label appropriately
- Cancel rental agreement with NPWT company
- Transfer equipment to equipment collection point for collection, label appropriately

At the completion of NPWT using health service owed equipment staff must:

- Clean equipment as per [Area Infection Control Policy Directives](#) eg, with neutral detergent and if know multi-resistant organism (MRO) colonisation as per facility protocol. [Management of Management of Multi-Resistant Organisms \(MROs\)](#)
- Return equipment to NPWT storage area eg, CHC wound - stoma office

9. DOCUMENTATION

- Wound assessment and Management plan S0056
- Documentation in the health care record needs to include type of TNWT, purpose of the therapy, wound filler to be used and the pressure that the machine needs to be set at and whether the therapy is to run at continuous or intermittent Discharge health care record.

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(NPWT)****SESLHDPD/136****10. REVISION & APPROVAL HISTORY**

Date	Revision No.	Author and Approval
5/5/11	Draft final	Combined SESLHN and ISLHN Wound Care Committees
August 2011	Draft final	Rebadged in LHD template by Acting Policy Officer – Michelle Bonner
August 2011	Draft final	Approved by SESLHD Clinical and Quality Council
November 2011	1	References and links updated with rebadged Wound – Antiseptic Policy
August 2015	2	Updated by Area Wound Committee. Endorsed by Executive Sponsor.
December 2015	2	Updated forms provided. Policy published.

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Appendix 1

BASIC DRESSING PROCEDURE FOR WOUNDS REQUIRING NPWT

GATHER EQUIPMENT:

- NPWT device
- appropriate dressing type/wound filler (i.e. gauze/foam) and size Canister
- Sterile scissors
- Sterile gloves
- Basic dressing pack Sterile normal saline
- Interface dressing if required
- Consider barrier wipes for peri wound skin
- Friars balsam can be used on peri wound skin to increase tackiness

DRESSING REMOVAL

- Close clamp on dressing tubing
- Separate dressing tubing and canister tubing by disconnecting the connector. Switch Therapy off
- Wait for 15 to 30 minutes to allow for foam to decompress.
- Gently stretch the drape horizontally and slowly pull up from the skin all the way round the wound
- Gently remove the old dressing. It may be necessary to moisten any points of adhesion with saline in order to make removal easier.
- If the dressing is still adhering to the wound bed introduce 10-30ml of warm normal saline into the drainage tubing and leave in-situ for 15-30 mins to soak into the dressing, and then try again to remove the dressing.

DRESSING APPLICATION

Initial application:

Clean the wound bed with saline. If there is any necrotic tissue or eschar that requires surgical debridement, contact the team requesting NPWT. Haemostasis must be achieved before dressing application

For subsequent dressings wound cleansing is not required

- Ensure surrounding skin is cleaned, dry and hair free, clipping where necessary If required apply skin barrier e.g. barrier wipe, hydrocolloid
- Select a dressing type and size that is an appropriate type and size for the wound and device, and cut it to size.

The wound filler must fit within the wound area. No wound filler should go on unprotected surrounding skin.

If using foam Do NOT cut the foam larger than the wound as this may lead to excoriation and damage to peri wound skin.

Always place dressing gently into the wound, packing too much into the wound may inhibit reduction of the wound size.

Always count and record the number of pieces of wound filler used on the outside of the dressing and in the patient's health care records. This can also be annotated on the drape with a permanent marker.

Place the dressing gently into the wound, more than one piece of foam can be used as long as the pieces of foam are in contact with each other.

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Cut the drape so that it covers the entire dressing plus no more than a 2cms border. Apply drape smoothing onto the skin to ensure it is crease free.

Apply tubing to wound dressing using technique appropriate to device. The tubing must not be secured so that it rests over a bony prominence. A strip of hydrocolloid can be used to cushion the tubing on the skin where it exits the filler.

- Remove canister from sterile packaging and push into NPWT device
- Connect the tubing from the dressing and the canister tubing
- Place the NPWT device on a level surface
- Turn on the NPWT device and follow the instructions on the screen.