



Negative Pressure Wound Therapy (NPWT)

EVIDENCE INFORMED PRACTICE TOOLS

March 2019(Updated)

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PURPOSE AND INTENT

To provide healthcare teams with evidence informed guidance, information and a consistent approach to consider regarding the use of Negative Pressure Wound Therapy (NPWT) within the Winnipeg Regional Health Authority (WRHA).

1. Practice Outcomes

Evidence informed practice recommendations for the indications and use of NPWT will facilitate quality client care and support clinical decision making based on current evidence, expert opinion and clinical judgment.

2. Background

NPWT applies controlled suction to a wound delivering intermittent, continuous, or variable negative pressure evenly through wound fillers (foam or gauze).

3. Levels of Evidence

There is limited evidence supporting enhanced wound healing with negative pressure wound therapy, however it is acknowledged that negative pressure wound therapy is a management enabler for complex wounds.

Level	Source of Evidence
Ia	Evidence obtained from meta-analysis or systematic review of randomized controlled trials, and /or synthesis of multiple studies primarily of quantitative research.
Ib	Evidence obtained from at least one randomized control trial
IIa	Evidence obtained from at least one well-designed, controlled study without randomization
IIb	Evidence obtained from a least one other type of well-designed, quasi-experimental study, without randomization
III	Synthesis of multiple studies primarily of qualitative research
IV	Evidence obtained from well designed, non-experimental observational studies such as analytical studies or descriptive studies, and /or qualitative studies
V	Evidence obtained from expert opinion or committee reports and/or clinical experiences of respected authorities

Adapted from the Scottish Intercollegiate Guidelines Network [SIGN] (2011), and Pati (2011)

4. Guidelines

4.1 Responsibilities of prescribing provider

The prescribing provider shall assess for NPWT to ensure that the person is an appropriate candidate for the treatment in terms of being able to adhere to and tolerate it.

4.1.1 High risk conditions

The provider will evaluate the following high risk conditions for NPWT as to their effect on the outcome of the treatment: diabetes, immune compromise, obesity, cardiovascular conditions, and peripheral vascular disease. In addition nutrition, pressure management, smoking cessation, and glycemic control are factors to consider for optimal NPWT.

4.2 Authorization

Those authorized to order NPWT shall be limited to Advanced Wound Care Clinicians, Physician Specialists and Surgeons.

4.3 Indications for NPWT: (Evidence = Level V)

- Abdominal compartment syndrome
- Fasciotomy wounds
- Skin grafts: placed in operating room to stabilize the new graft
- Large open surgical wounds (once debrided and any infection is being treated) as a wound management enabler and only on extremely large, heavily exudating, difficult to dress wounds (e.g. large dehisced abdominal wounds)

4.4 Contraindications to NPWT (Use of NPWT with contraindicated conditions may only be ordered by those authorized to prescribe NPWT in 4.2) **(Level of Evidence = V)**

- Bleeding disorders including anticoagulant therapy: International normalized ratio (INR) and Prothrombin time (PT) must be stable and be monitored for NPWT to be applied. **NOTE** If bleeding develops suddenly or in large amounts during NPWT or if bright red blood is seen in the canister or the tubing, **stop** NPWT. Leave the dressing in place, take measures to control or stop the bleeding and seek medical attention.
- Malignancy in the wound
- Untreated osteomyelitis
- Dry non-exudating wounds
- Non-enteric and unexplored fistula
- Necrotic tissue with eschar present
- Narrow sinus tracts that inhibit insertion/retrieval of foam or adequate access to wound surface

4.5 Precautions for use of NPWT (Level of Evidence = V)

- Known risk for bleeding, active bleeding
- High risk conditions as outlined in 4.1.1
- Nutritional deficiencies as deficient hemoglobin and albumin levels will interfere with wound healing. Consult Registered Dietitian before proceeding with NPWT to assess and monitor nutritional status.
- Sharp edges of bone fragments as the action of dressing may increase risk of puncture to blood vessels.
- Exposed blood vessels, anastomotic sites, tendons, organs or nerves should not come into direct contact with foam dressings (interface required)
- Lack of adequate tissue coverage over vascular structures

4.6 Wound assessment/Duration of treatment

Prior to the application of NPWT ensure that a comprehensive wound assessment has been conducted and documented, See Evidence Informed Practice Tool: Wound Bed Preparation <http://www.wrha.mb.ca/extranet/eipt/files/EIPT-013-003.pdf>

- NPWT is considered a short term therapy/intervention. NPWT should be re-evaluated at 2 weeks. NPWT should be discontinued if the wound has not shown improvement, evidenced by a 15% reduction in size in 2 weeks.
- Maximum length of therapy for NPWT is 4 weeks unless the only indication is for complex wound management issues.

4.7 Written order

Those authorized to order NPWT shall be limited to Advanced Wound Care Clinicians, Physician Specialists and Surgeons.

A written order for NPWT shall include:

- Wound filling material (gauze, foam) and indication for non-adherent layer
- Negative pressure setting. Recommended settings are -75 to -125 mm Hg based on wound assessment and type of foam used. V.A.C. Whitefoam™ requires a minimum pressure of -125mmHg due to the higher density of the material, and when using Whitefoam™ the pressure can increased up to -150mmHg for highly exudating wounds if -125mmHg is not adequately managing the exudate.
- Therapy setting (continuous, intermittent, or variable)
- Reassessment date to continue or discontinue therapy
- Frequency of dressing changes, usually recommended to be 2-3 times per week

4.8 Application and management of NPWT systems

4.8.1 Application of NPWT in a facility

Initial application of NPWT will be performed by the authorized ordering provider listed in 4.2. Education on the application and management of NPWT systems is required. Staff responsible for dressing changes and monitoring of wound progress shall have education before attempting dressing or canister changes.

4.8.2 Application of NPWT in Home Care

Initial application of NPWT will be performed by the visiting nurse. Education on the application and management of NPWT systems is required.

4.9 Approval for use of NPWT outside indications in 4.3

WRHA Home Care

All requests for NPWT outside of the indications in 4.3 must be screened by: Dr. Sarvesh Logsetty at (204) 787-7638 or Dr. Ed Buchel at (204) 787-7224 if Dr. Logsetty is not available. Both physicians will be available during regular working hours. Requests on weekends will be handled the following Monday.

Health Sciences Centre

All requests for NPWT outside of the indications in 4.3 must be screened by: Dr. Sarvesh Logsetty at (204) 787-7638 or Dr. Ed Buchel at (204) 787-7224 if Dr. Logsetty is not available. Both physicians will be available during regular working hours. Requests on weekends will be handled the following Monday.

St Boniface Hospital

All requests for NPWT outside of the indications in 4.3 must be screened by Dr. Ed Buchel at (204) 787-7224.

All other sites including Long Term Care (Personal Care Home)

If NPWT is used outside of the indications in 4.3, the following shall apply:

1. Documentation of the goal for use of NPWT
2. Written order as per 4.7
3. Comprehensive wound assessment and documentation prior to application of NPWT

4.10 Discharge from hospital with NPWT

When a patient is being discharged to the community with NPWT, arrangements should be made for timely follow-up with the ordering prescriber.

WRHA Home Care

WRHA Home Care uses a disposable NPWT system

- If the patient is to be followed by WRHA Home Care, complete the Home Care NPWT referral form: <http://home.wrha.mb.ca/hinfo/chif/files/WCC-00168.pdf>
- Prior to discharge the NPWT system being used in the hospital shall be removed and replaced with a conventional wound dressing.
- Home care will apply a disposable NPWT system in the community.
- If the hospital is discharging a client to another RHA other than WRHA, the ordering of the NPWT must be done through the rural RHA, rather than WRHA Home Care.

Long Term Care

If the patient is being discharged to Long Term Care, an Advanced Wound Care Clinician or Clinical Nurse Specialist from the sending facility reviews the proposed wound care plan to determine if NPWT treatment is essential. If deemed necessary, the receiving facility, in consultation with facility-employed or LTC Program Clinical Nurse Specialists or Advanced Wound Care Clinicians, must determine if NPWT treatment can be accommodated as part of the admission or re-admission process.

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