

## Protocol 18 · NPWT from hospital wall suction, for inpatients, across all indications

Evidence position: **Practice guidance** · Source: NPWT Evidence Library, [www.wondsortg.co.za/NPWT.html](http://www.wondsortg.co.za/NPWT.html), content as at 2026-10-04

### Indication

NPWT from hospital wall suction, for inpatients, across all indications.

**Evidence position: Practice guidance.** A technique, not an indication. It applies on top of the wound's own protocol.

### What this means

Negative pressure from the hospital's piped vacuum instead of a commercial pump: a wall regulator sets the pressure, a trap sits between wound and wall, and a tube runs to a foam or gauze dressing sealed under film. Inpatient only, because the patient is connected to the wall. It can serve any open-wound indication in protocols 1 to 17 while the patient stays on a ward. It is not a closed-incision device and it cannot go home.

### Why NPWT is used here

The mechanism does not need a proprietary pump: the only low-bias trial in a 21-trial statutory review ran foam and a catheter on wall suction at 100 mmHg and reached 90 percent granulation in 18.8 versus 32.3 days. Three randomised trials against the commercial device found no difference over days (area falling 4.5 versus 4.9 percent per day; graft take 96.1 versus 96.2 percent; 9.6 versus 12.8 days to a graftable bed). It costs a fraction of a rented device (US\$4.22 versus US\$96.51 per day) but more than plain gauze (US\$360 versus US\$271 per case). The comparator decides the answer.

### Patient selection

- Device status: a bedside-assembled circuit is not a registered medical device. Use it only for supervised inpatients, under the treating surgeon's responsibility and the hospital's own approval, with the patient's informed consent.
- An inpatient on a ward with piped vacuum, in a service that chose the technique deliberately, measures what it delivers, and counts the pieces it puts in.
- Any open-wound indication in protocols 1 to 17, applying that protocol's selection and contraindications in full. This page adds rules and relaxes none.
- A patient who will stay in hospital for the therapy. One who must leave the ward needs a portable device; this circuit is not a reason to refuse one.
- Untested in the vascular population: the head-to-head trials excluded severe arterial disease (ABPI below 0.6) and diabetes. Over an ischaemic or diabetic limb apply protocol 6 and prefer a device.

Plus, as for every protocol: a compliant, compos mentis patient with an included circle of care.

### Contraindications

#### Specific to this indication

- No regulator, or no manometer to check it: an unregulated outlet can reach several hundred mmHg.
- A seal that cannot be made airtight: an unlimited-flow source draws air across the wound through any leak and dries the tissue to necrosis (the founding paper's warning).
- A patient who must be mobile, transferred, or off the ward on suction.
- A vessel, graft or anastomosis where the regulator cannot reliably hold minus 50 to minus 100 mmHg: use a device.

Plus every general contraindication and caution listed in protocols 1 to 14, unchanged.

### Potential risks and side-effects

- The dial is not the dose: a South African series measured minus 93 to minus 143 mmHg (mean minus 121) against settings of minus 100 to 125, about 7 percent high. There is no alarm, so an over-pressure or lost seal is found at the next change.
- No piece count, marker or instructions: presume retained foam at least as likely as with a device. In one series 4 of 46 failed when hand-cut foam adhered in a cavity that closed over it. Non-medical foam has no biocompatibility data.
- Supply: in one trial 5 of 17 losses from the low-cost arm were because the hospital ran out of materials.
- No safety surveillance exists for improvised circuits; absence of reported harm is absence of reporting. One trial's improvised arm had two deaths from organ failure against none on the device (never a pre-specified outcome). A Redon-bottle circuit was stopped early because it was losing.

Plus the general risks of all NPWT (bleeding, blistering, pain, anxiety, retained foam, adhesive damage), as in protocols 1 to 14.

### Treatment protocol

|                               |                                                                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Source</b>                 | Piped vacuum through a regulator, with a trap and antibacterial filter between wound and wall. Never a wound on an unregulated outlet.                                                                                |
| <b>Pressure</b>               | Set minus 100 where minus 125 is intended (delivery runs about 7 percent high); minus 70 to 80 where lower suction is wanted. Read the manometer every shift.                                                         |
| <b>Mode</b>                   | Continuous. No cycle for a wall circuit has ever been justified or compared.                                                                                                                                          |
| <b>Interface, drain, seal</b> | Medical-grade foam, or saline-moistened gauze at minus 75 to 100. Non-adherent layer over tendon, bone or graft. A 16 to 18 Fr catheter between two interface layers; film 2 cm beyond the margin. Count every piece. |

|                        |                                                                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Seal check</b>      | Clamp the tube and watch the manometer: no excursion, no leak. A working gauze dressing visibly shrinks. Recheck every shift and after every move. |
| <b>Change interval</b> | Gauze daily; foam every 48 to 72 hours (24 to 48 if infected). Record delivered pressure and seal each time.                                       |

**Step by step**

1. Confirm the wound meets its own protocol and the patient will stay on the ward. Write down why wall suction was chosen.
2. Assemble regulator, filter, trap, tubing, drain, interface, film. Set the regulator and read the manometer before connecting.
3. Prepare the wound as its protocol requires; drain between two interface layers; seal; connect; watch it draw down; record the reading, the setting and the piece count.
4. Every shift: manometer, seal, canister, pain. Reconnect promptly after washing or mobilising (patients in the SA series disconnected two to three times a day, 33 minutes in all).
5. At each change reconcile the piece count first; then photograph, measure and apply the indication's stop rules.
6. Plan the exit: closure or graft, or conversion to a portable device (wall suction sufficed for 11 of 16 in the SA series; 5 needed a mobile device).

**When to stop and call for help**

The stop rules of the wound's own protocol apply. Add: a manometer reading above the setting, or a seal that cannot be restored within two hours, is a stop.

**Outcome measures**

- Delivered pressure each shift against the setting; seal failures per day and how they were found.
- Piece count reconciled at every change: yes or no.
- The indication's own outcome measures (protocols 1 to 17).
- Days on wall suction; conversion to a portable device and why; any day the circuit failed for lack of materials.

**What to document at every change**

Everything the wound's own protocol requires, plus: regulator setting, manometer reading, seal-check result, and the piece count in and out, every shift.

**A point worth knowing**

Two 1997 papers frame this technique. The founding clinical paper discouraged wall suction because an unlimited-flow source pulls air across the wound through any leak and dries it to necrosis; the companion animal paper measured blood flow peaking at 125 mmHg and falling below baseline above 400. Regulate the pressure, guarantee the seal. No improvised-circuit paper cites either: the objection has been skipped, not refuted.

**Funding note (South Africa)**

**ICD-10:** None for the apparatus. Code the wound (protocols 1 to 17). **PMB:** Not applicable. A scheme funds a therapy for a wound, never a bedside-assembled circuit; this is never the subject of a funding motivation.

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