

Protocol 5 · Wounds in peripheral arterial disease, after revascularisation

Evidence position: **Not supported** · Source: NPWT Evidence Library, www.woundsorg.co.za/NPWT.html, content as at 2026-10-04

Indication

Wounds in peripheral arterial disease, after revascularisation.

Evidence position: Not supported. Not supported for faster healing: SWHSI-2 (GRADE High) found that open post-operative wounds, mostly in PAD and diabetes, healed no faster. Use it for exudate control and as a bridge, once perfusion is corrected.

What this means

Peripheral arterial disease (PAD) is narrowing of the leg arteries. A wound in a leg with PAD will not heal until blood flow is restored, usually by angioplasty or bypass. This protocol covers wounds in PAD patients after revascularisation, or where perfusion has been measured and found adequate. Where the blood supply has not been dealt with, NPWT is contraindicated (see protocol 6).

Why NPWT is used here

A 342-patient matched cohort found NPWT patients 2.6 times more likely to heal, with the effect strongest when NPWT started within three months. A systematic review of 14 trials found the most consistent signal in vascular lower-leg and diabetic-foot wounds. Two recent independent trials in this exact population were negative on their primary endpoint, so the claim is modest: NPWT helps once perfusion is restored, and it is not a substitute for restoring it.

Patient selection

- A post-operative or chronic lower-limb wound in a patient with PAD after successful revascularisation, or with documented adequate perfusion (see thresholds in protocol 6).
- The wound has been debrided and is free of dry gangrene.
- The patient can attend for changes or has home nursing that can manage the device.

For all NPWT

- The patient must be compliant and compos mentis: able to understand what the device does, keep the seal, protect the tubing and pump, report bleeding, pain or alarms, and attend or receive dressing changes.
- The patient's circle of care must be included: family, carers, home-nursing service or ward team, whoever will be present when the seal fails at night. Document who was told what and who is responsible for the device between visits.

Contraindications

Specific to this indication

- Unaddressed arterial impairment: do not use.
- Acute limb ischaemia.
- Dry stable gangrene awaiting demarcation.

For all NPWT: do not apply if

- Active bleeding beyond capillary ooze. Stop it first; NPWT does not control bleeding.
- An uncorrected clotting disorder.
- An exposed vessel, graft, anastomosis, organ or nerve with no barrier between it and the foam.
- Dead tissue not yet debrided, untreated bone infection, or cancer in the wound bed.

Proceed with caution and record the decision

- Blood thinners: a caution, not a bar. Lowest effective pressure, barrier over any vessel, inspect at every change, record the decision.
- Pacemaker or defibrillator: the pump of the canister-free single-use device (PICO) holds a magnet. Keep it 10 to 15 cm from the device, away from the chest, and record where it sits.
- Fragile surrounding skin or adhesive allergy. Children: no NPWT system was cleared for them as at 2011; treat as a hard limit unless current labelling says otherwise.

Potential risks and side-effects

- Deepening ischaemia at the wound edge if the vacuum is too high for the blood supply. Use the lowest effective pressure.
- A negative trial should be disclosed: the canister-free single-use device (PICO) at minus 80 mmHg after revascularisation did not change 30-day wound occurrence (37.9 versus 44.8 percent), though seroma fell.
- A UK study in a mainly vascular population found no healing advantage and less than a 30 percent chance of being cost-effective; nursing costs differ in South Africa, so this may not transfer.
- Bleeding: the serious harm. All six deaths in the regulator's first two-year series, and nine of twelve overall, were bleeds in patients whose bleeding risk had been missed (12 deaths, 174 injuries).
- Skin blistering: about 3.5 times more likely than with an ordinary dressing (risk ratio 3.55, 95% CI 1.43 to 8.77).

- Pain at changes (pre-medicate; soak a stuck sponge with saline) and anxiety in the first days, which settles. Say so beforehand.
- Retained foam, the regulator's commonest injury: count every piece in and out, and never cut foam over the wound. Adhesive damage to skin.

Treatment protocol

Pressure	Minus 50 to minus 100 mmHg continuous over compromised perfusion; standard minus 80 to minus 125 mmHg once perfusion is restored and confirmed. Where a vessel, arterial repair or vascular graft lies in the wound bed, exposed or under a barrier: minus 100 mmHg or less (this library's setting; reasons and technique in protocol 1).
Mode	Continuous.
Interface	Black foam; PVA foam over tendon, bone or vessel.
Change interval	Every 48 to 72 hours.
Review	Perfusion re-checked if the wound edge darkens. Stop and re-plan at four weeks without progress.

Step by step

1. Confirm and record the revascularisation and the current perfusion measurement (toe pressure or TcPO₂, not ABPI alone).
2. Debride. Confirm haemostasis.
3. Apply foam, protect any exposed structure, seal, and start at the lower end of the pressure range.
4. Inspect the wound edge at every change for dusky change or new necrosis: that is the signal to lower the pressure or stop.
5. Photograph and measure. Set a defined endpoint and review date.

When to stop and call for help

- Fresh bleeding into the canister or dressing: pump off, pressure on, call the surgeon.
- New or rising pain, spreading redness, fever or a foul smell: review the same day.
- A seal that cannot be held for more than two hours.
- No progress at four weeks: stop and re-plan.

Outcome measures

- Wound area change at four weeks and time to closure or graft.
- Wound-edge necrosis during therapy (a harm signal specific to this group).
- Limb salvage: any amputation and its level.
- Perfusion measurement before and, if repeated, during therapy.

What to document at every change

- Indication; which contraindications were checked and excluded.
- Pressure, mode, interface, and the number of foam pieces placed and removed.
- Wound length, width and depth, a dated photograph, exudate, any bleeding, and the pain score.
- The planned review date and the endpoint (closure, graft or flap).

A point worth knowing

Under suction the tissue pressure beneath the dressing rises rather than falls, and radioisotope measurements show perfusion decreases in proportion to the vacuum. In a limb that is already short of blood, a higher vacuum can deepen the ischaemia. That is why this indication uses the lowest effective pressure and why it needs the perfusion problem solved first.

Funding note (South Africa)

ICD-10: I70.21 (with gangrene) or I70.20 (lead); pair with the wound code. **PMB:** 915E (gangrene, severe atherosclerosis, diabetic PVD).

References

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