

Protocol 9 · Necrotising soft-tissue infection and Fournier's gangrene, after debridement

Evidence position: **Guarded** · Source: NPWT Evidence Library, www.wondsortg.co.za/NPWT.html, content as at 2026-10-04

Indication

Necrotising soft-tissue infection and Fournier's gangrene, after debridement.

What this means

Necrotising fasciitis and Fournier's gangrene (the same disease in the perineum and genitals) are rapidly spreading infections that kill tissue along the fascial planes. The life-saving treatment is urgent radical surgical removal of all dead tissue, repeated as often as needed, with intravenous antibiotics. NPWT, usually with instillation, is the wound-management step that follows: it manages the large raw area left behind, removes fluid and helps prepare it for reconstruction.

Why NPWT is used here

A series of contaminated wounds including necrotising infection reached 92 percent durable closure. A systematic review of 28 Fournier's studies, however, found benefit over conventional dressing unproven. The plain position: NPWT makes a very large wound manageable; it has not been shown to change survival.

Patient selection

- After the first radical debridement, once the surgeon is satisfied that no further dead tissue remains today.
- The patient is stable enough for a dressing that will be changed under sedation or in theatre.
- Repeat debridement is planned at 24 to 48 hours; NPWT does not replace the second look.
- In Fournier's, the anatomy (scrotum, perineum, near the anus) makes a seal difficult: plan the dressing with that in mind, and consider a diverting colostomy if faeces threaten the seal.

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

- Any remaining undrained necrosis: debride first. Suction over dead tissue does not remove it.
- An unexplored fistula, particularly into the rectum.
- Active bleeding after the debridement.

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

- Missing progression: the infection can spread under an intact-looking dressing. The dressing change is the second look; do not delay it for convenience.
- Seal failure over the perineum, leading to contamination with faeces.
- Pain at changes on very large raw areas: changes belong in theatre or under sedation early on.
- 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 125 mmHg during the suction phase of instillation therapy. 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).
Solution	Normal saline is the consensus first choice. Where there are clinical signs of infection, an antiseptic first (hypochlorous acid, or quarter-strength Dakin's 0.125 percent) stepping down to saline at 24 to 48 hours.
Dwell time	10 minutes (accepted range 1 to 20 minutes).
Suction phase per cycle	One to two hours where cleansing is the goal; two to three hours where granulation is the goal.
Interface	Instillation foam (polyurethane ester). Through-hole foam where the wound cannot be fully debrided surgically.
Change interval	Every 48 to 72 hours, timed with the planned re-look. Step down to standard NPWT once the bed is clean.

Step by step

1. Radical debridement and intravenous antibiotics come first and are the treatment.
2. Apply instillation NPWT in theatre after debridement, once haemostasis is secure. Run a test cycle and watch the fluid fill and clear before leaving the patient.
3. Change at 48 hours, in theatre, as the planned second look. Debride again if needed.
4. Once no further necrosis appears and the bed is granulating, step down to standard NPWT and plan reconstruction (graft or flap).
5. Involve the multidisciplinary team early: urology or colorectal for Fournier's, plastic surgery for reconstruction.

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

- Number of debridements before the bed was clean.
- Days from first debridement to reconstruction.
- Survival at 30 days (state that NPWT is not claimed to change this).
- Wound area at each change; time to closure.
- Length of ICU and hospital stay.

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

Instillation NPWT cleanses; it is an adjunct to repeated surgery and antibiotics, not a substitute. Complete bacterial clearance was achieved in fewer than one in four wounds in one study, and two of three meta-analyses found no reduction in the number of surgical debridements. A request should claim wound management and preparation for reconstruction, not fewer trips to theatre.

Funding note (South Africa)

ICD-10: M72.6x by site, or N49.8 (male) / N76.8 (female) for Fournier's; A48.0 for gas gangrene. **PMB:** 349J (necrotising infection) or 277S (gas gangrene); life-threatening, 48-hour decision.

References

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