

Protocol 19 · NPWT: Safety and Patient Selection

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

General. Applies above every indication.

Purpose

An indication answers whether this wound may have NPWT. This page answers whether this patient, in this setting, with this supervision, may have it. The two questions are separate, and the second is the one the harm literature is about.

The rule this page exists to state

The patients with the least supervision are at the greatest risk of complications. The regulator's cumulative series records 12 deaths and 174 injuries, bleeding attached to 9 of the 12 deaths, and most deaths occurred at home or in long-term care; in more than half of the injury reports naming a location the event occurred outside hospital. The one formal analysis of how NPWT care fails found inadequate clinical monitoring to be the root cause of its index bleed. The harms are ordinary: bleeding, retained foam, infection under an unchanged dressing, a lost seal that nobody noticed. Every one of them is a supervision failure before it is a device failure. The first question is not the wound; it is who will be watching.

Patient factors: assess and record before the first dressing

- Level of consciousness and cognition. The patient must be compos mentis: able to understand what the device does, why the seal matters, what an alarm means and what bleeding looks like in the canister. A drowsy, confused, delirious, sedated or demented patient cannot self-monitor and cannot report; NPWT is safe for such a patient only where a trained person is present and looking at the dressing on a stated schedule. Reduced consciousness is also the state in which a patient pulls at tubing, lies on the pump, or is found with the dressing detached.
- Fall risk. NPWT tethers the patient to a pump by a tube. A pump on a stand, a tube across a floor, a canister carried to the bathroom: each is a trip hazard, and a fall with a tethered dressing can avulse the dressing, tear the seal or disrupt the wound. Assess fall risk formally (mobility, gait aids, night toileting, sedatives, previous falls). In a high-risk patient prefer a body-worn portable device, keep the tubing short and routed away from the feet, and supervise mobilisation.
- Compliance. The patient will keep the seal, protect the tubing, not disconnect for long periods, and attend or accept dressing changes. In the South African wall-suction series patients disconnected two to three times a day for about 33 minutes in total and managed it: that is what compliant looks like.
- Circle of care. Family, carer, home-nursing service or ward team: whoever will actually be present when the seal fails at night. They are told what to watch for, what to do and whom to call, and the notes record who was told what and who is responsible for the device between visits.
- Anxiety. In the one trial that measured it, anxiety rose more with NPWT than without over the first ten days. Say so beforehand: worse early, better later.
- Nutrition. Screen nutritional risk and record intake before the first dressing, and involve a dietitian: the dressing removes protein-rich fluid and cannot supply what the patient lacks. The one NPWT-specific cohort is 42 patients and proves only the principle.

The physician's list: systemic optimisation before the first dressing

Perfusion and oxygenation (cardiac output, respiration, blood pressure, arterial inflow to the limb); glycaemia (HbA1c where not recent); haemoglobin, platelets, clotting and anticoagulant or antiplatelet drugs in the last seven days; venous thromboembolism risk stratified whenever mobility is reduced (prophylaxis is not a bar to NPWT); smoking cessation; nutrition; screening for immunosuppression where the history suggests it; antibiotics directed by tissue culture.

Palliative or maintenance NPWT

Some wounds will never close. NPWT can still contain exudate and odour, keep linen clean and stretch changes to 72 hours for a bed-bound patient with advanced dementia or a patient with end-stage cancer too unwell for surgery. Motivate it per case as symptom control with comfort and containment as the written endpoint, under the same safety rules; it is not an indication, because there is no effectiveness evidence to appraise.

The supervision gradient

Ward, on wall suction or a device	Highest supervision. Shift checks of seal, canister, alarms, pain; for wall suction, the rules in protocol 18.
Home with home-nursing visits	Moderate. A trained nurse sees the dressing on a stated schedule; the household knows the stop rules and the return route.
Home without nursing	Lowest, and where the deaths cluster. Only a compliant, compos mentis patient with an engaged circle of care; the device must have alarms; a return route must exist.
Long-term care facility	Assess as home. The regulator's deaths cluster here too.

Children

As at 2011 the regulator recorded that safety and effectiveness in newborns, infants and children had not been established and no NPWT system was cleared for those populations. Against that: a blinded randomised trial in 114 children with small burns found faster re-epithelialisation as an adjunct (moderate certainty); the Chinese consensus gives age-banded pressures, minus 50 to minus 75 mmHg under 2 years and minus 75 to minus 125 from 2 years; the Birmingham Children's Hospital consensus (2009) gives minus 25 to minus 75 mmHg for neonates and infants and minus

75 to minus 125 for children and adolescents, continuous, with the canister prefilled by age (neonate 275 mL, infant 250, child 200, adolescent 150 of a 300 mL canister) so a bleed shows early, and the pump never taken into the MRI suite. Warning: that document was funded by the manufacturer KCI, is written around its device, and its pressures are consensus opinion, not trial data; where the two consensus bands differ, use the lower pressure; and South African neonatal open-abdomen use exists (15 neonates, Red Cross Children's Hospital); a US claims dataset shows 3,184 insured children on NPWT between 2006 and 2014, half as outpatients, with a 2.4 percent coded complication rate at home (confounded by severity; not evidence that home is safer). Position: NPWT in a child is a specialist-unit decision under current device labelling, at the lower of the age-banded pressures, with the parents as the circle of care and inpatient supervision. It is not a ward default and not a home therapy.

Patients on anticoagulation or antiplatelet therapy

A caution, not a bar. The regulator places anticoagulants among its risk factors to consider, not its contraindications. The conditions: lowest effective pressure, a barrier over any vessel, inspection at every change, haemoglobin followed rather than canister volume, and the decision recorded. Two cases to teach from: a 61-year-old on oral anticoagulants with hypovolaemic shock at day 2 from a small artery ruptured by suction, root cause inadequate monitoring; and a tibial artery eroded on enoxaparin where only 600 mL ever reached the canister. The failure in both was the monitoring, not the anticoagulation.

Specific procedures: closed-incision selection

- Breast surgery: dehiscence reduced (RR 0.59 on the breast, 0.40 at the donor site; moderate certainty); infection not reduced (RR 0.72, CI 0.22 to 2.34). Select for dehiscence risk (reduction mammoplasty in obesity, DIEP donor site), not for infection.
- Caesarean section: in 876 obese women infection fell from 9.2 to 4.6 percent (RR 0.50, NNT 22). But the largest economic evaluation (2,035 women) found the standard dressing dominant, and once the four basic measures were delivered the only residual risk factor was unscheduled caesarean, not BMI. Select the unscheduled, obese caesarean where the basics are already done; do not claim cost-effectiveness.
- Perineal wound after abdominoperineal resection: pooled complications RR 0.79 (0.42 to 1.48), not significant, very low certainty; individual series positive. Reasonable in a selected irradiated perineum; not supportable as routine.

What to record

Level of consciousness; fall-risk assessment and mitigation; who the circle of care is and what they were told; anticoagulation and the bleeding mitigations; the setting and the supervision schedule; the alarm and the return route. If any of these cannot be written down, the patient has not been selected.

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