



Negative pressure wound therapy (NPWT) in chronic, acute and surgical wounds

What is the condition?

- Chronic wounds (for example, pressure ulcers, foot wounds in people with diabetes and venous leg ulcers).
- Acute wounds (for example, trauma and burns).
- Surgical wounds (for example, open abdomen, sternal wounds, skin flaps/grafts, surgical closure failures, amputations, surgical incisions and reconstruction).

What is the technology?

Negative pressure wound therapy (NPWT) is a treatment that is sometimes used on wounds. It involves a sealed foam or gauze dressing over the wound, a suction pump which generates negative pressure over the wound, and a drainage tube going from the dressings to a canister within the pump unit. NPWT works by:

- Removing extra fluid from the wound that may contain germs that can cause infection
- Encouraging new tissue to grow
- Increasing the blood supply so plenty of nutrients and oxygen are delivered to the wound bed
- Keeping the wound moist
- Pulling the edges of the wound together

NPWT can be used on many different types of wound, in hospital or at home.

What we did

We looked for studies that compared wounds treated with NPWT to wounds treated with standard dressings. Various 'patient outcomes' were reported in the literature, including how quickly wounds healed, how many dressing changes were needed, or how long patients stayed in hospital. We looked at all the patient outcomes that were reported on in the studies.

What we found

There are some studies which support the use of NPWT in people with diabetes who require treatment for either foot ulcers or post-operative foot wounds.

For open fracture wounds there is no evidence that NPWT is better than standard care for wound healing at 6 weeks. In people with open fracture wounds, NPWT is unlikely to be good value for money. For all types of open traumatic wounds (not just wounds with broken bones), the evidence is uncertain as to whether there is a difference between NPWT and standard care in the risk of wound infection, adverse events, times to closure or coverage surgery, pain or health-related quality of life.

For most wound types, there were too few good quality studies. This means that we could not make confident conclusions on the use of NPWT in: pressure ulcers; venous leg ulcers; burns; open abdomen; wounds healing by primary intention (including split thickness skin grafts, caesarean section wounds and closed incision wounds); surgical wounds healing by secondary intention (where there is tissue loss and the wound edges cannot be brought together); and sternal wound infections after cardiothoracic surgery.

The patient organisation, Diabetes Scotland, told us that:

- There are many differing types of NPWT device available, and this can be confusing.
- Patients and their families/carers should be advised of the benefits and risks associated with NPWT, what alternative treatment options there are, and what to expect with treatment (for example, frequency of dressing changes and the need for pain relief prior to dressing changes).
- Patients should be made aware that the noise made by NPWT devices may change as they move, or as the wound heals, and this does not necessarily mean the device is not working.

What is our advice to NHSScotland?

NPWT should be considered in people with diabetes who require treatment for either foot ulcers or post-operative foot wounds.

We are unable to give advice either supporting or refuting the use of NPWT in: pressure ulcers; venous leg ulcers; burns; open abdomen; traumatic wounds; wounds healing by primary

intention (including split thickness skin grafts, caesarean section wounds and closed incision wounds); surgical wounds healing by secondary intention; and sternal wound infections after cardiothoracic surgery.

Future work

There is a need for further good quality research on the use of NPWT.

This plain language summary has been produced based on SHTG Advice Statement 01-19 (Jan 2019)