

# WHAT IS THE FUTURE OF NEGATIVE PRESSURE?

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**KL:** ‘If the patient has a history of wound breakdown following surgery, the use of NPWT can reduce the risk by removing fluid, reducing swelling and increasing blood flow to the area’

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**N**egative pressure wound therapy (NPWT) or topical negative pressure (TNP) has been widely available for around 15 years in the UK. During that time there have been many changes in how and when the systems are used and the type of equipment available.

The development of new brands and a wider range of machines (e.g. portable machines for use in the community) means that NPWT is becoming more accessible. Costs are reducing with the increased competition and as clinicians become more confident, areas of application are extending.

Despite the paucity of high-level research there is a plethora of clinical evidence supporting the use of NPWT and its benefits both for patients and the healthcare system. Reported benefits of using NPWT include:

- ▶ Increased local blood flow to the wound through increased dilation of arterioles
- ▶ Reduced tissue oedema through the removal of excess fluid
- ▶ Stimulation of granulation tissue, resulting in progressive wound closure
- ▶ Stimulation of cell proliferation
- ▶ Removal of free radicals from the wound
- ▶ Removal of slough
- ▶ Reduction in wound volume
- ▶ Protection from outside contaminants
- ▶ Decrease in wound bioburden
- ▶ Maintenance of a moist wound healing environment (Wounds UK, 2008).

Since the patent on the original negative pressure system was overturned in 2005, there has been a greater choice of NPWT brands available. For example, systems designed specifically for use on the open abdomen and smaller single-use devices

targeted at postoperative or community use. The introduction of gauze as a new wound interface has made many of the systems simpler to use and increased the range and types of wound in which NPWT can be used because of the flexibility it offers.

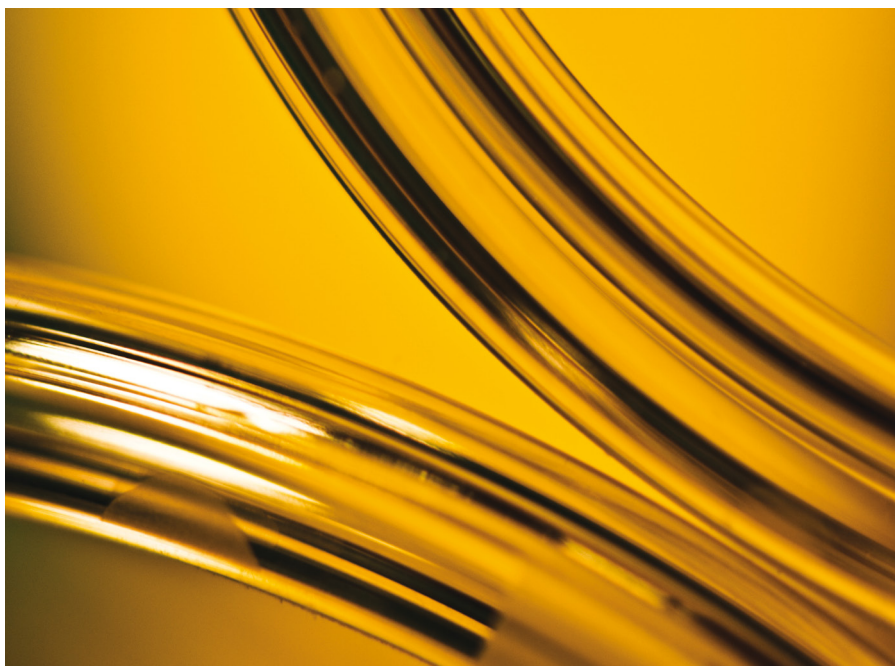
Despite the clear benefits of NPWT, there are still challenges in implementing its use in practice, not least of which, according to Cochrane, is the lack of robust clinical evidence (Ubbink et al, 2008). However, there is a vast amount of clinical data showing the clear benefits of using this therapy in practice (Leaper, 2009a and b). This does not mean that the use of NPWT is straightforward — there are still many areas where best practice is unclear and experienced clinicians push the boundaries of practice on a daily basis. Some issues remain contentious and the best level of evidence available on which to base practice is currently expert opinion.

The debate below asks two prominent wound care clinicians, Steven Jeffery and Kathleen Leak, for their views on the treatment.

*Jacqui Fletcher*

*Do you see a place for both foam and gauze as fillers? How would you decide which to choose?*

**SJ:** Some fillers work better for different scenarios. For example, it is a lot easier to wrap a limb using a roll of gauze than to use sponge, whereas sponge is very suited to flat defects. Gauze is also easier to stuff into the ‘nooks and crannies’ of an irregular wound, and is easier to remove. Sponge, however, produces granulation tissue more quickly. Gauze is also indicated if circumferential wrapping of the limb is required to produce a splint. Hopefully



more fillers will be developed, which will be better suited to certain wounds.

**KL:** There is a place for both foam and gauze. Foam seems to give more compression on large open abdomens where bowel is exposed and indeed the specialist dressings developed for these wounds use foam. However, gauze is easier to use on all other wounds, being easier to fit, less traumatic to remove and able to fit into any cavity or sinus where foam is not licensed.

*Can you see a reason for the increasing use of NPWT prophylactically in postoperative wounds — if so what do you believe to be the benefits?*

**SJ:** The splinting effect of the dressing on a freshly closed wound cannot be underestimated. Reducing the mechanical strains on the wound is particularly important in wounds that are at high risk of dehiscence.

**KL:** If the patient has a history of wound breakdown following surgery, the use of NPWT can reduce the risk by removing fluid, reducing swelling and increasing blood flow to the area. NPWT has also been demonstrated to improve scar lines.

*Do you think that the increased choice*

*of pumps is beneficial and is this cost effective or could equally good results be achieved with appropriate use of standard devices?*

**SJ:** For most wounds a 'standard' pump will be more than sufficient to achieve the desired result. However, there are certain features of other pumps, such as controlled irrigation, or the ability to programme variable intermittent pressures, which will allow certain wounds to be treated more effectively. I suspect that in the future, these extra features will become standard.

**KL:** I do not think standard devices can achieve the same outcomes as specially designed devices. This is seen in the case of the new portable single-use devices, which have the advantage of being pocket sized and very light to carry. We have audited these specialist devices and found that they save on cost and time as well as improving quality of life.

*Do you believe using an antimicrobial as either a liner (i.e. silver dressing), or for irrigation (i.e. PHMB solution) is a useful addition to NPWT?*

**SJ:** Until proper trials have been completed into these products, I do not think their use should be routine.

**KL:** The use of antimicrobial dressings has, in my area, improved outcomes, released hospital beds and reduced the use of antibiotics, particularly in the case of norovirus.

*Do you believe that the availability of increasingly portable devices will have an impact on patients' quality of life?*

**SJ:** I can remember when NPWT pumps were very difficult to get hold of, and it was a battle with the hospital administration even to use them on a named patient basis. For this reason we only used these devices on the most difficult of wounds. As the benefits are now being shown to apply to all wounds, and as prices have come down, the threshold for using these pumps has reduced to such an extent that they can now be used on wounds that would not normally keep patients in hospital.

The increased portability of these pumps, some of which are now tiny, will help to break down any barriers to take-up, such as concerns around cost or ease of use, allowing patients to leave hospital earlier and mobilise without the constraints of being tethered to a large pump. My children laughed at me when I told them the first mobile phones were attached by a wire to a briefcase containing the battery. I suspect that the next generation of clinicians will regard the earlier versions of NPWT with similar amazement.

**KL:** We have already seen improvements in patients' quality of life in our area. Breast cancer patients are now receiving chemotherapy on time and it is easier to maintain the mobility of elderly and orthopaedic patients. **WUK**

## References

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