

## NPWT in the community

## how to guide

The use of negative pressure wound therapy (NPWT) has increased significantly over recent years. Its use was initially confined to secondary care but NPWT is now provided in primary care, enabling earlier discharge for patients. This 'how to' guide looks at the use of NPWT, focusing on the role of portable, single-use devices in the community.

### TREATING CHRONIC WOUNDS IN THE COMMUNITY

The cost to the NHS of caring for chronic wounds is estimated to be in the region of £2-3bn per year (Posnett and Franks, 2007). Some estimates suggest that one in three chronic wounds has remained unhealed for longer than six months (Posnett and Franks, 2007).

Wound care has always formed a large part of the district nurse's role and, as the NHS evolves, it is likely that the early discharge of patients with challenging wounds will become the norm. In addition, as our elderly population increases, so too does the chronicity and complexity of the wounds with which they present.

'Complex wound' is a blanket term used to describe wounds that are more difficult to manage, possibly due to their size, volume of exudate and presence of undermining. The term also refers to wounds with difficult-to-manage tissue types present, such as slough and necrosis. Such wounds often present in patients who have concurrent illnesses and are a significant challenge to the clinician.

It is essential that nurses treating complex wounds have access to the best possible wound dressings and therapies in order to provide optimal and cost-effective wound management.

### WHAT IS NPWT?

NPWT is a well-established wound care therapy in which controlled suction (vacuum) is applied to the wound bed. Traditional systems comprise a foam or gauze filler dressing, which is then sealed with a plastic drape and the drain is connected to a pump. Wound exudate is pulled out through the drain and collected in a canister.

Originally used to treat large surgical wounds and pressure ulcers, NPWT is now used to treat a greater variety of complex wound types, including diabetic foot ulcers, venous leg ulcers and smaller surgical wounds.

### How does NPWT work?

Negative pressure is viewed as an interventional therapy that actively supports wound healing and impacts on the wound in a number of ways (Box 1). The effects of NPWT will depend on the type of filler used and the amount of pressure applied (Malsjö and Borgquist, 2010).

### BOX 1: HOW NPWT WORKS

- Promotes local reduction in oedema
  - Removes wound exudate
  - Improves blood flow
  - Stimulates cell proliferation
  - Promotes granulation tissue formation
  - Provides a closed, moist wound environment
- (Morykwas and Argenta, 1997; Molnar, 2004; Saxena, 2004)

### Making NPWT more portable

The first therapy devices were large, noisy and more suited to a hospital environment. More portable, less noisy devices became available that allowed some patients to be discharged into the community.

The most recent development concerning this technology has been the creation of portable, single-use ultra lightweight negative pressure devices. PICO<sup>®</sup> (Smith & Nephew) has been developed to allow patients and clinicians to experience the benefits of negative pressure without the drawbacks of the traditional canister-based NPWT systems. PICO does not require a canister to collect exudate. Instead exudate is drawn into a superabsorbent dressing and is subsequently dispersed as vapour via the dressing's upper film layer. A small pump produces a continuous negative pressure of -80mmHg and can be started or paused using a single orange button.

### Potential drawbacks of standard NPWT devices

- Device may be too large for the patient to carry comfortably
- More complicated to operate
- Low levels of exudate may not warrant standard system
- Alarms may be confusing for some patients
- Mains charging required
- May be expensive and contract may be required or may not be readily available.

### Potential benefits of portable, single-use NPWT devices

- Small, lightweight, disposable
- Can be worn discretely under clothing
- Portable design is ideal for use on patients being discharged to the community
- Simple and easy to use
- Off-the-shelf product, so no need for contract to be in place, therefore more accessible.

**APPROPRIATE USE OF NPWT IN THE COMMUNITY**

Portable NPWT single-use systems can be used on low to moderately exuding wounds, including:

- Pressure, venous and diabetic foot ulcers
- Post-surgical wounds, such as dehiscence
- Traumatic wounds
- Pre-and postoperative flaps and grafts.

**When is NPWT appropriate?**

- Wound has not progressed for six weeks or longer
- Wound is being re-dressed three or more times per week
- Patient has been receiving NPWT in acute care and has been discharged to the community.

**Factors to consider:**

- Will the patient's symptoms be managed more effectively using NPWT?
- What are the dimensions of the wound and can NPWT be easily applied?
- Are there any contraindications?
- Will the placement of the tubing be a problem?
- If the patient is to be discharged, will he or she be able to manage the NPWT system at home?
- Is the patient willing/able to give consent?

**Precautions**

- The patient's potential for healing is compromised, eg by diabetes
- Patient has a skin laceration or tear with flaps.

**When not to use NPWT**

- Patients with malignancy in the wound bed or margins of the wound (except for palliative care to enhance quality of life)
- Previously confirmed or untreated osteomyelitis
- Non-enteric and unexplored fistula
- When necrotic tissue with eschar is present
- Use over exposed blood vessels, nerves or organs
- Exposed anastomotic sites.

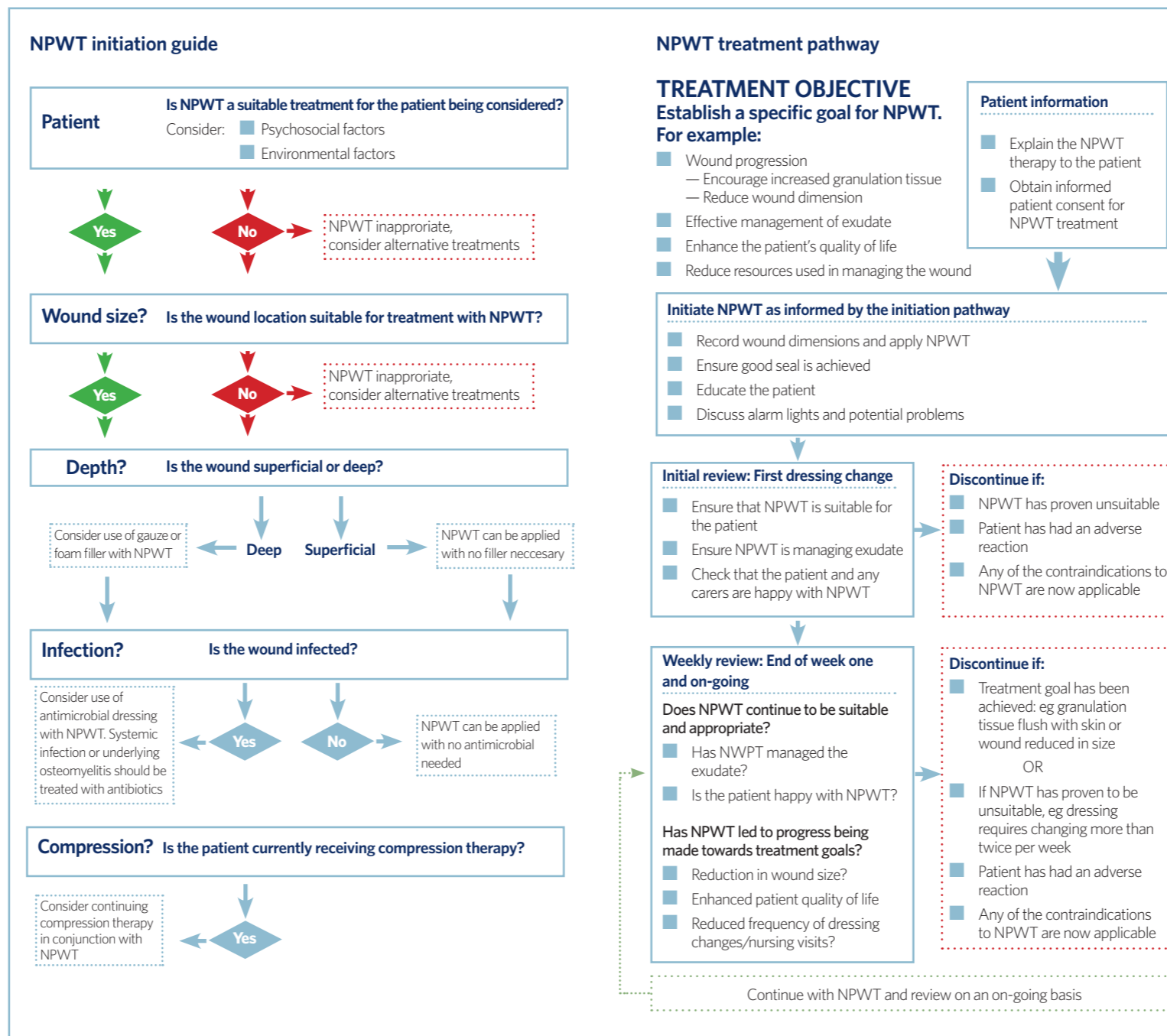
To help you decide when NPWT is appropriate see the treatment pathway. Consider contacting the clinical lead for further guidance.

**Setting treatment goals**

The best way to ensure a favourable outcome from an intervention with NPWT is to set some treatment goals. These include:

- To decrease wound size: length, width, depth
- To manage and decrease drainage
- To 'kick start' a non-healing wound
- To increase granulation tissue
- To increased epithelialisation
- To help decrease odour/pain levels
- For symptom management/other patient-related factors.

These same treatment goals should be reassessed weekly to ensure they are still appropriate.



**SINGLE-USE NPWT COMMUNITY USAGE GUIDE**

Ensure that factors which may adversely affect the patient's ability to heal have been identified and appropriately addressed.

- Review NPWT initiation pathway to inform initial treatment decisions
- Use NPWT care pathway to guide and review ongoing treatment.

**Application do's and don't's**

- ✓ Ensure that the surrounding skin is clean and dry before application
- ✓ Decide if the wound requires a filler material
- ✓ Ensure adequate seal around the dressing
- ✓ Change the pump/device every seven days
- ✓ Change the dressing only when indicated. Infected wounds may require more frequent dressing changes
- ✗ Avoid drape over the dressing pad. This may affect moisture vapour escape and fluid handling
- ✗ Avoid positioning the port in areas of high pressure shear or friction to help prevent pressure damage
- ✗ Avoid cutting dressings as this may result in loss of suction.

**Using NPWT at home**

Before discharge it is important to assess whether the patient can continue to receive NPWT in the home environment using portable equipment. Home use may raise certain safety issues.

**Safety checklist**

- Is the patient/carer able to manage the therapy, ie does the patient have any hearing loss or vision problems?
- Is the patient's home environment appropriate?
- Are there any psychological and social issues that prevent use of NPWT?

**If the patient is suitable for NPWT at home:**

- Ensure the patient has given informed consent. The rationale for using NPWT and treatment goals should be explained as well as how long the treatment is likely to take and possible outcomes
- Explain to the patient/carer how the device works and how to recognise any signs and symptoms that require immediate clinical attention
- Ensure that the patient/carer can demonstrate their knowledge of the system and understand what to do if the alarm sounds or there is a warning light.

Patients using NPWT at home should not change or remove their own dressing or interfere with the therapy settings. To wash or shower, the patient should be instructed to clamp and disconnect the tubing from the therapy unit. When using PICO the tubing can be removed from the pump to allow the person to shower.

**When should NPWT be discontinued?**

Treatment should be stopped when the treatment goals have been reached. If any adverse events occur, such as skin reactions, pain or bleeding, NPWT should be stopped.



Figure 1. Gauze-based NPWT using a drain to apply suction.



Figure 2a. Single-use, canister-free NPWT system (PICO) applied to a patient with a muscle flap.



Figure 2b. Following seven days of therapy, the flap was well perfused and exudate levels were minimal.

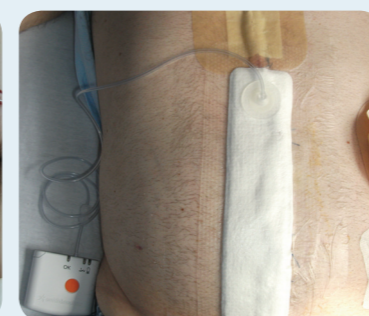


Figure 3. Patient with large abdominal wound showing single-use, canister-free NPWT system (PICO) in situ. Note position of the port at the uppermost point of the wound. This helps to maximise absorbency

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**FREQUENTLY ASKED QUESTIONS BY PATIENTS****What support will I receive throughout the course of my NPWT treatment?**

You will initially receive information from your nurse about the NPWT device. This should include how to manage the tubing, wear the device during daily activities and deal with alarms (Moffatt et al, 2011). Nursing support will continue throughout treatment and nurses will change dressings when necessary in your home.

**How often does the dressing need changing?**

Dressings will be changed according to the manufacturer's recommendations; however, the condition of your wound will ultimately influence the frequency.

**How long does the battery last?**

The battery life of NPWT devices can vary significantly. In many portable devices the battery life can last up to 20 hours. The battery can be recharged when plugged into the mains with the power lead supplied. It is advisable to recharge the battery overnight. When using PICO the batteries should last for one week. If they run out before this, your district nurse can insert two new AA batteries into the pump.

**How do I know if there is a leak and what do I do?**

In most NPWT systems, if there is a leak, the alarm will sound or a light will appear on the display. You should be instructed on how to repair leaks.

**Can I bath/shower while using NPWT?**

For most portable devices, showering is possible after clamping the tubing and disconnecting the machine. However, it is generally recommended that you only shower immediately before dressing changes just in case the dressing does not stay intact. Bathing is not recommended.

**ROLE OF EDUCATION AND TRAINING**

The government strategy to move more care into the community setting, together with advances in tissue viability, has meant that more complex wound care can now be provided in the community setting and that therapies such as NPWT are increasing (Ousey and Milne, 2009). This requires an awareness of what products are available, how they work and whether they are clinically and cost-effective.

In addition, the prescriber of NPWT should be sufficiently trained and have the knowledge and expertise to undertake a full assessment of the patient and his/her wound.

**HOW TO ACQUIRE NPWT FOR COMMUNITY USE**

Portable, single-use NPWT systems are available for purchase. Some are currently available on Drug Tariff in the UK and are an off-the-shelf product rather than a rental device. This has simplified the prescribing procedures for acute and community use, making these systems more available for patients.

**NPWT AND OUTCOMES**

A recent study has shown that using NPWT in the community can be cost-effective. With portable NPWT devices, patients can leave the hospital and receive treatment in the community at an estimated cost of £38.50 per day, compared with the daily cost of a hospital stay at £288. For an average NPWT treatment duration of 20 days, the estimated savings of community care is £4,814 per patient. This also leaves hospital beds free for those who need them (Dowsett et al, 2012).

Research into the experience of patients using NPWT in the home setting has shown that patients generally had a positive response to the device and saw it as an active intervention that was associated with improved wound healing and control of symptoms. This had an impact on patient concordance and quality of life (Moffatt et al, 2011).

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**Further reading**

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**KEY LEARNING POINTS**

1. Understand the role of NPWT and how it works
2. How to set treatment goals and initiate NPWT in the community setting
3. Understand what information the patient needs to know to use the device at home effectively

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