

Dispelling some myths and misconceptions in wound care

Annemarie Brown

Over the years, there has been a plethora of evidence-based literature on effective and ineffective wound management practices; however, some healthcare professionals continue to manage wounds using outmoded or ritualistic practices. The key areas are: frequency of dressing changes; maintenance of a moist environment to aid healing; when wounds should be cleansed; and which cleaning solutions to use. This article presents the evidence base in these key four areas and aims to dispel some of the myths and misconceptions to ensure that healthcare professionals can be confident that they are delivering up-to-date, evidence-based wound care in accordance with the Code of Conduct (Nursing and Midwifery Council [NMC], 2015).

KEYWORDS:

- Wound care ■ Dressing choice ■ Wound cleansing
- Evidence-based care

The purpose of this article is to discuss some of the myths and misconceptions in wound-care practice. The key areas discussed will be frequency of dressing changes, the practice and implications of keeping wounds 'dry', care of sutured and clipped surgical wounds — when to clean and what to use — and when sterile or non-sterile gloves should be used for dressing changes.

FREQUENCY OF DRESSING CHANGES

Before the introduction of an ever-increasing toolkit of sophisticated wound dressings, healthcare professionals were restricted by a limited selection of basic dressing materials, such as gauze and Gamgee, to manage wounds. As a result, daily dressing changes were required to manage wound exudate effectively. With the introduction

of a plethora of interactive modern dressings, this practice is now largely outmoded and can actually be detrimental to wound healing, with the exception of some specific circumstances and wound types (Wounds International, 2013), which will be discussed further in the article.

Modern wound dressings have been developed to cope with all volumes of wound exudate. One example would be polyurethane foam dressings, which are versatile, in that they are available in a range of absorbencies and shapes, with thicknesses ranging from 1mm to 4–7mm. As a result, they are marketed as being suitable for highly exuding wounds, as well as those with minimal exudate (White et al, 2012).

White et al (2012) suggest, however, that they are more suited to a low-to-moderate volume of exudate and may need the application of an additional dressing material, such as alginate or Hydrofiber to manage more copious exudate.

Dependent on exudate volume, foam dressings can be left in place for several days without causing maceration, thereby reducing dressing and nursing costs (Drew et al, 2007). It is recommended that the dressing is changed when exudate reaches a maximum of 1cm from the edge of the dressing. However, excessive exudate is associated with malodour, maceration and visible strikethrough (Tickle, 2012), and so, in reality, leaving a dressing on this length of time may be aesthetically unacceptable to the patient.

For highly exuding wounds, defined as those that 'typically produce 5ml per 10cm² in a 24-hour period' (Lamke et al, 1977), there are superabsorbent dressings, which are designed to manage exudate in chronic wounds, such as leg ulcers, lymphoedematous legs, dehisced surgical wounds and malignant wounds (Cutting, 2009; Tickle and Fletcher, 2012). These can be used under compression bandaging, however healthcare professionals must take the bulk of the dressing into account when considering compression bandage systems, as they will increase leg circumference, thereby reducing the amount of therapeutic compression the patient receives (Cutting, 2009; Cook, 2011).

Too much exudate within a wound can be detrimental to wound healing, since the optimum environment requires a moisture balance, which is neither too wet nor too dry (Okan et al, 2007). As the wound heals, volume of exudate should decrease (Thomas et al, 1996; Thomas, 1997). However, poor wound assessment, too frequent dressing changes, and/or an inappropriate product choice

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3 Step

Prevent
recurrence
- mediven hosiery



2 Step

Heal
with measureable
compression
- juxtalite



1 Step

Assess and clean
Compress with
confidence and wound
debridement plan
- MESI ABPI MD
- UCS Debridement



Venous leg ulcers

medi's wound care pathway

can actually delay healing. For example, using a dressing with highly absorbent properties (such as alginates) on a dry wound will dehydrate the wound bed and cause trauma on removal, resulting in the reinitiation of the inflammatory response (Flanagan, 2013).

Choosing a dressing that cannot cope adequately with the volume of exudate may result in maceration and excoriation of the wound margins, and, as a result, the wound may extend. Selecting an appropriate wound product which can effectively manage wound exudate will provide an ideal environment for healing and, by increasing wear time and reducing dressing changes, wound care and nursing costs will be substantially reduced (Dowsett et al, 2012; Dowsett, 2015).

However, cost is not the only reason why increasing dressing wear time is beneficial. Maintaining wounds at body temperature has been shown to optimise the wound healing process and may even reduce the risk of wound infection (Locke, 1979; Bowler, 2002). Modern interactive dressings are designed to insulate the wound and maintain it at body temperature, while frequent removal of dressings, particularly in a cool environment, may result in a reduction in temperature. As a result, healing will be delayed until the optimum temperature has been reached, and this will be compounded if a cold cleansing solution is applied to the wound bed. If this occurs on a daily basis, healing may be significantly delayed. Frequent

Red Flag Dressings

Frequent removal of dressings, particularly in a cool environment, may result in a reduction in temperature. As a result, healing will be delayed. Frequent exposure of an open wound to the environment also increases risk of wound infection (Sajid et al, 2009).

dressing changes, which expose the open wound to the environment, also increases the risk of wound infection (Sajid et al, 2009).

WHEN DAILY DRESSING CHANGES MAY BE NECESSARY

There are circumstances, however, when daily dressing changes may be necessary, for example, for fungating or malignant wounds, which tend to produce copious and often offensive exudate (Alexander, 2009; Naylor, 2013). The management aim here is on enhancing the patient's quality of life, rather than providing an optimum healing environment.

'Healthcare professionals must take the bulk of a dressing into account when considering compression bandage systems, as they will increase leg circumference, thereby reducing the amount of therapeutic compression (Cutting, 2009; Cook, 2011).'

These can be challenging wounds to manage, and require very frequent, ongoing assessment and evaluation, since the characteristics of the wound may change continually and their management must be responsive to the patient's needs. As a result, it is recommended that healthcare professionals only obtain a small supply of dressings at a time to avoid wastage.

Excised pilonidal wounds which are healing by secondary intention may require daily dressing changes if conventional dressings rather than vacuum-assisted closure are used. Many modern dressings are designed to stay in place for several days with an extended wear time, and this is reflected in their relatively high unit cost (Harris et al, 2012). However, due to the anatomical location of the wound, the area needs to be kept clean to reduce the infection risk by faecal contamination (Harris et al, 2016).

Practice point

Good wound assessment, appropriate frequency of dressing changes and product choice all affect wound healing.

Patients should be encouraged to shower daily and after every bowel movement, and then re-apply a clean dressing. Healthcare professionals must balance the dressing's properties in terms of exudate handling, frequency of bowel movements, conformability to the wound, patient comfort and acceptability, with the cost of the dressing (Brown, 2017).

KEEPING WOUNDS 'DRY'

Ever since George Winter's 1962 seminal work on wound healing, which revolutionised dressing materials, it has been widely accepted that providing a moist environment for wounds enhances the wound-healing process, reduces pain and improves the quality of the scar (Queen and Harding, 2013). The theory is that wound fluid provides a medium for cells and growth factors to migrate across the wound easily, provides vital nutrients, and enables debridement of non-viable tissue by autolysis (Martin, 2013). Before the 1980s, traditional dressings, named 'dry dressings', included gauze and non-woven island dressings, which were not occlusive or interactive, and dried out, adhered to the wound bed and caused additional trauma on removal (Briggs Institute, 2011; Queen and Harding, 2013).

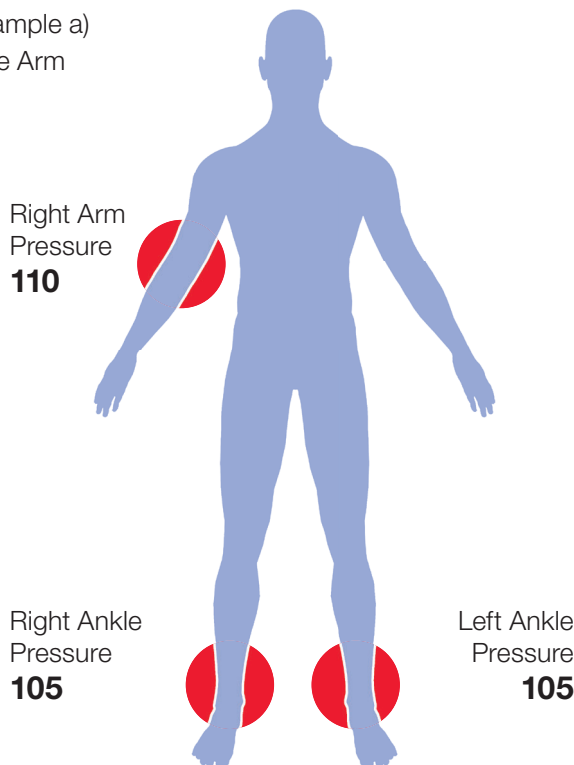
Unfortunately, despite increased knowledge and education on wound management over the years, the concept of moist wound healing is still not universally embraced (Queen and Harding, 2013). A study conducted in 2001 found that more than 50% of chronic wounds were not treated with modern moist dressings, despite their wide availability (Jones, 2006). The reasons given for the continued use of traditional

Ankle Brachial Index

Why it is essential to measure both arms

HUNTLEIGH

Example a)
One Arm

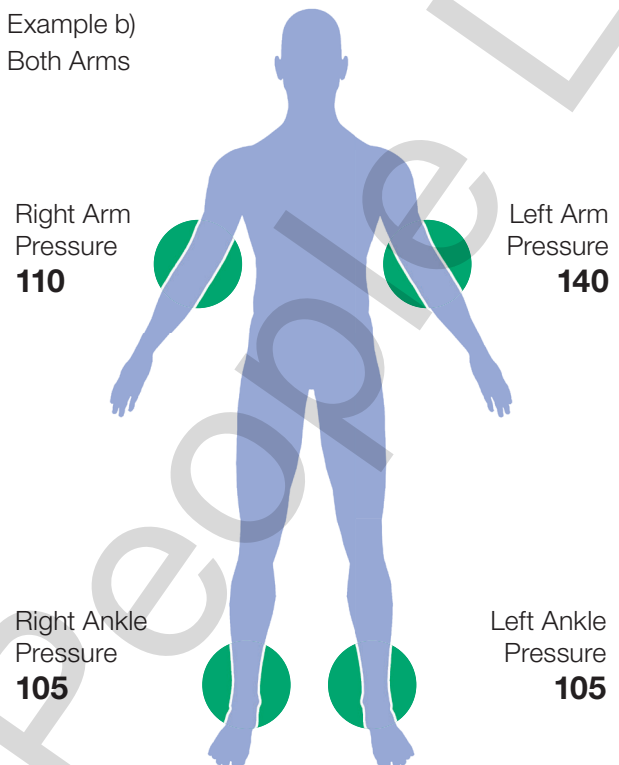


Ankle Brachial Pressure: $\frac{105}{110} = 0.96$



You would **INCORRECTLY** compress

Example b)
Both Arms



Ankle Brachial Pressure: $\frac{105}{140} = 0.75$



You would **NOT** compress

Current guidelines specify you should measure both arm pressures and take the highest. (NICE, ESC, ACC/AHA, TASC2 and Aboyans et al*)

Otherwise:

- You could misdiagnose PAD (Vowden & Vowden; 2018)**
- You could apply compression to a patient with PAD which could lead to an adverse incident (Vowden & Vowden; 2018)**
- You should always follow evidence based practice
- Automatic systems which measure the pressure in only one arm contradict the guidelines and may miss or incorrectly classify cases of PAD.



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* NICE, CG147 (Peripheral arterial disease: diagnosis and management 2018); ESC - European Society of Cardiology (Guidelines on the Diagnosis and Treatment of Peripheral Arterial Diseases, in collaboration with the European Society for Vascular Surgery, European Heart Journal, 2017); ACC/AHA - American College of Cardiology/American Heart Association (Guideline on the management of Patients with Lower Extremity Peripheral Artery Disease, Circulation, 2017); Measurement and Interpretation of the Ankle-Brachial Index (Aboyans et al, Circulation, 2012); TASC2 - Inter-Society Consensus for the Management of Peripheral Arterial Disease (Journal Of Vascular Surgery, 2007)

** Vowden P & Vowden K (The importance of accurate methodology in ABPI calculation when assessing lower limb wounds, BJCN, 2018)

Practice point

As well as evidence-based practice, other factors to consider when deciding on wound care should include: surgeon's instructions, location of sutures/clips, location and nature of wound, and patient preference (Widgerow, 2013).

dressings, which included mainly gauze-based dressings, were budget constraints and lack of knowledge in routine healthcare settings. Unfortunately, these types of dressings do little to promote healing or patient comfort and should be avoided (Queen and Harding, 2013).

KEEPING SUTURED/CLIPPED SURGICAL WOUNDS 'DRY'

Many patients with sutures or wounds that have clips, usually post-surgery, are advised to keep the wound and the sutures/clips dry. It was previously thought that a soggy, wet dressing would act as a focus for wound infection (Widgerow, 2013). However, a randomised, controlled trial (RCT) conducted by Heal et al (2006) aimed to investigate infection rates in superficial surgical wounds kept dry compared with uncovered wounds in the first 48 hours post-surgery. No increased infection rates were observed in the uncovered wounds that had been allowed to become wet through bathing or showering.

As a result, the authors recommended removing any dressings 12 hours after surgery, to shower, as opposed to bathe, as normal, and to avoid using highly perfumed shower gels, antiseptics or soaps (Heal et al, 2006). This study focused on superficial skin procedures, such as biopsies, however, a systematic review of the surgical wound literature by Dayton et al (2013) also concurred with the findings of Heal et al (2006).

Furthermore, a Cochrane review in 2013 found that

dressings were not necessary on clean or partially contaminated surgical wounds 48 hours post-surgery, and that continuing to dress these wounds beyond this timeframe showed no benefit in terms of reduced wound infection, dehiscence or other significant wound complications. The authors did, however, comment on the poor quality of the studies reviewed (Toon et al, 2013).

'Wound cleansing is only indicated where there are visible signs of contamination, for example, gravel in a wound..., faecal contamination in sacral pressure ulceration, slough in the wound bed, or the wound is infected.'

Although these are evidence-based recommendations, the surgeon's instructions and factors, such as location of sutures/clips, location and nature of the wound and patient preference should also be considered when deciding on the care of these wounds (Widgerow, 2013).

WHEN TO CLEAN AND WHAT TO USE

Routinely cleaning a granulating, healthy wound which has no evidence of slough, contamination or infection remains largely a ritualistic practice (Flanagan, 2013). Furthermore, unnecessary cleaning of wounds, particularly acute wounds, may damage fragile new tissue formation and can contribute to a delay in wound healing. Additionally, the application of a cold cleaning solution has been estimated to delay wound healing by 40 minutes until the optimum temperature of 37°C is reached (Locke, 1979). Low temperatures in the wound bed will reduce the levels of oxygen and leukocytes present, increasing the risk of wound infection (Feinstein and Miskiewicz, 2009).

Wound cleansing is only indicated where there are

visible signs of contamination, for example, gravel in a wound following an accident, faecal contamination in sacral pressure ulceration, slough in the wound bed, or the wound is infected. Removing visible slough within the wound will reduce the bacterial burden and therefore the risk of wound infection (Flanagan, 2013).

Saline and tap water

Traditionally, sterile saline has been used as the cleansing solution of choice, as it is isotonic and will not disrupt the normal healing process (Flanagan, 2013). However, more recently, a Cochrane review concluded that potable tap water, when used for wound cleansing, is equally effective as normal saline and does not increase wound infection rates (Fernandez and Griffiths, 2012).

The use of potable tap water, however, is dependent on the clinical setting. For example, it may be easy to use tap water in the community setting, such as the patient's home or a GP surgery, but a study found that 98% of wash basins within inpatient settings were contaminated by multi-resistant bacteria (Johnson et al, 2009). In view of this finding, it may be more convenient and safer to use a sachet of normal saline for wound cleansing in an inpatient setting to avoid the potential for bacterial contamination. Sterile saline is also recommended for cleaning surgical wounds up to 48 hours post-surgery (National Institute for Health and Care Excellence [NICE], 2013). If using tap water, Flanagan (2013) advises running a tap or shower for a few seconds before use to avoid the tap

Red Flag Biofilms

It is important to look for subtle clues of biofilms within wounds. These include delayed healing and persistent slough that returns rapidly following debridement (Cutting et al, 2010). If the presence of a biofilm is suspected, the application of an antiseptic solution may be appropriate.

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water being contaminated by bacteria on the taps or shower head.

Antiseptic solutions

The routine use of antiseptic solutions to cleanse wounds, particularly those seen to be healing well, is discouraged (Smith, 2005; Thomas et al, 2009; Wounds UK, 2013). However, more recently, topical antiseptics are becoming more popular for cleansing wounds that display evidence of an increased bacterial burden, obvious infection, biofilm, excess exudate, necrotic tissue or debris in the wound bed (Cutting, 2010).

In these situations, there is some evidence that the application of a cleansing solution containing polyhexanide biguanide (PHMB) and betaine has been shown to reduce the bacterial burden, disrupt biofilm and may be beneficial in the wound-healing process (Bradbury and Fletcher, 2011). This product is available as a solution or gel and can be applied directly from a bottle or pod. Alternatively, the solution can be applied on a soaked gauze pad, although the recommendation that this should be done daily and needs to be left on the wound for at least 15 minutes may prohibit its use in a busy clinical environment (Bradbury and Fletcher, 2011).

An additional cleaning solution that has been found to be effective in disrupting biofilm is a water-based solution containing octenidine dihydrochloride (Braun et al, 2014). Biofilms are mainly found in chronic wounds and are communities of many strains of bacteria, surrounded by a slimy protective layer of polysaccharides,

which provides an effective barrier against most antimicrobial agents (European Wound Management Association [EWMA], 2004; Percival et al, 2012; Rajpaul, 2015).

Although this solution is generally prescribed pre-operatively for the eradication of meticillin-resistant *Staphylococcus aureus* (MRSA) colonisation (NHS Choices, 2017), it has broad-spectrum properties and is available as a solution or gel and can also be applied directly to a

‘Healthcare professionals need to look for subtle clues of biofilm within the wound, such as delayed healing and persistent slough, which returns following debridement (Cutting et al, 2010). If a biofilm is suspected, application of an antiseptic solution may be appropriate.’

wound. It has also been found to be effective in debriding slough, as it maintains a moist environment, thus facilitating autolysis and disrupting biofilm and bacteria within the wound bed (Chamanga et al, 2015).

It is not possible to see the presence of a biofilm within a wound and there are currently no diagnostic tools available. Healthcare professionals, therefore, need to look for subtle clues, such as delayed healing and persistent slough, which returns rapidly following debridement (Cutting et al, 2010). If these are present within a wound and the presence of a biofilm is suspected, application of an antiseptic solution may be appropriate.

ASEPTIC OR CLEAN TECHNIQUE FOR DRESSING CHANGES?

One of the main aims of performing an aseptic non-touch technique is to reduce the risk of

Red Flag

Cleansing

Unnecessary cleaning of wounds, particularly acute wounds, may damage fragile new tissue formation and can contribute to a delay in wound healing.

introducing potential pathogenic micro-organisms into vulnerable sites, such as blood, the bladder or where skin integrity has been breached, for example, wounds (NICE, 2013). Furthermore, it is used to prevent the transfer of these pathogenic organisms from one patient to another, and from patient to staff, and vice versa (NICE, 2013).

The principle of the ‘non-touch’ technique in routine wound care is difficult to achieve and this term is more consistent with the use of plastic forceps, which were used traditionally (Aziz, 2009). Nowadays, wound dressing packs generally contain sterile gloves, and so if the healthcare professional is required to touch the wound, there is little risk of contamination (Aziz, 2009).

An aseptic technique should always be used to change dressings in wounds that are healing by primary intention, which is when the wound edges are held together with sutures, clips or Steristrips (Downie et al, 2010; Widgerow, 2013), or in patients who are immunocompromised (NICE, 2013). However, the majority of these wounds will have re-epithelialised within 24–48 hours post-surgery, and therefore a dressing is no longer necessary (NICE, 2013).

If the wound has not completely healed after 48 hours and still requires a dressing, an aseptic technique must be used, particularly in the acute clinical setting (Downie et al, 2010). This is because of the risk of potential pathogens, which are likely to be present in a hospital setting, entering the wound. This is unlikely to be the case in the patient’s own home; therefore,

Practice point

Routinely cleansing a granulating, healthy wound remains largely ritualistic practice (Flanagan, 2013). Wound cleansing is only indicated where there are signs of visible contamination.

KEY POINTS

- Evidence-based wound care is essential in managing wounds.
- The range of modern dressings available means that daily dressing changes are not always required and can impede healing.
- Wound care techniques and dressing choice depends on the wound type and care environment.
- Wound cleansing is necessary only when there are visible signs of contamination.
- Challenging wounds require frequent, ongoing assessment.
- Nurses should keep their practice up to date.

if a dressing is required on an unhealed surgical wound within the patient's home, a 'clean' technique is acceptable (NICE, 2013).

The key difference between a 'clean' and an 'aseptic' technique is the use of sterile versus non-sterile gloves (Aziz, 2009). As stated previously, the main aim of an aseptic technique is to avoid introducing bacteria into a wound; however, in the case of chronic wounds, there is already a high level of bacteria present, as they have generally been open for long periods (Edwards-Jones, 2010). As such, it would be pointless to use sterile gloves, and a clean technique with non-sterile gloves is completely appropriate (Aziz, 2009).

It is also accepted practice for patients to shower or bathe in their own home before dressing changes in the community. There are many variations of performing an aseptic or clean dressing technique (Aziz, 2009) and district nurses, who perform dressing changes in the patient's own home, often adapt their technique according to the environment and

wound type. For example, the common practice of immersing a leg ulcer in a bucket of tap water for cleansing and then dressing a venous leg ulcer and applying compression bandaging would make an aseptic non-touch technique impossible to perform. Patient and environmental factors should always be taken into account when deciding on which technique is appropriate (NICE, 2013).

CONCLUSION

Nurses are required by their Code of Conduct to keep their practice up to date, and to deliver nursing care based on best available evidence for which they are accountable (Nursing and Midwifery Council, 2015).

This article aims to address some of the common myths and misconceptions of wound care, which may have become ritualistic and are no longer evidence-based. It is not intended as a definitive guideline, but may prompt healthcare professionals to re-examine and reflect on their current practice to ensure that they are delivering the most appropriate wound management for the patients in their care. **JCN**

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Revalidation Alert

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- The importance of avoiding ritualistic practice
- Frequency of dressing changes — what should be considered?
- When and how you cleanse wounds.

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