

Acute versus chronic wound exudate

Wound exudate is an important component of the acute wound healing process. It is mainly produced during the inflammation and proliferation phases of healing, to transport the essential cells and nutrients required for tissue repair during these stages. However, excess exudate can impair healing.

Acute wound exudate

- Is a natural component of the wound healing process. A medium for cell migration into the wound, it contains essential nutrients, proteins, activated matrix metalloproteinases (MMPs), inflammatory mediators and growth factors, all of which are required for cell proliferation and thus wound healing (White and Cutting, 2006)
- Contains white blood cells, which will assist in the destruction of bacteria and devitalised tissue (slough and necrotic tissue)
- Its volume is normally highest in the inflammation phase of healing, during the natural process of vasodilation, and decreases as the wound progresses along the healing continuum
- Is a vital component of the reparative process as it creates the optimum medium for autolysis, transportation of nutrients, diffusion of growth factors and migration of epithelial cells.

Chronic wound exudate

- Contains elevated levels of MMPs. Lack of inhibition of the MMPs leads to the degradation of essential proteins, enzymes and growth factors. This results in impaired cell proliferation and further tissue breakdown
- Can cause the wound to remain static in a state of prolonged inflammation, which delays healing (McCarty and Percival, 2013)
- If not managed by a wound dressing, the excessive moisture can result in maceration of the peri-wound skin and further tissue damage
- Matrix metalloproteinases and waste products contained within chronic wound exudate can cause skin stripping/excoriation and an increased risk of bacterial critical colonisation or infection (World Union of Wound Healing Societies (WUWHS, 2007).

Impact of unmanaged wound exudate

Impact on the patient

- Exudate can lead to significant psychosocial challenges. Malodorous and unmanageable leakage from wound dressings can cause patients to become anxious, fearful and socially isolated
- Exudate can also contribute to increased pain and discomfort
- High exudate levels can necessitate more frequent dressing changes, further reducing quality of life (Wounds UK, 2013).

Impact on the clinician

- Increased dressing changes, which in turn require additional nurse time
- Increased use of resources, including wound dressings
- Delayed wound healing, which again requires more resources (including dressings) and clinicians' time.

Assessment of wound exudate

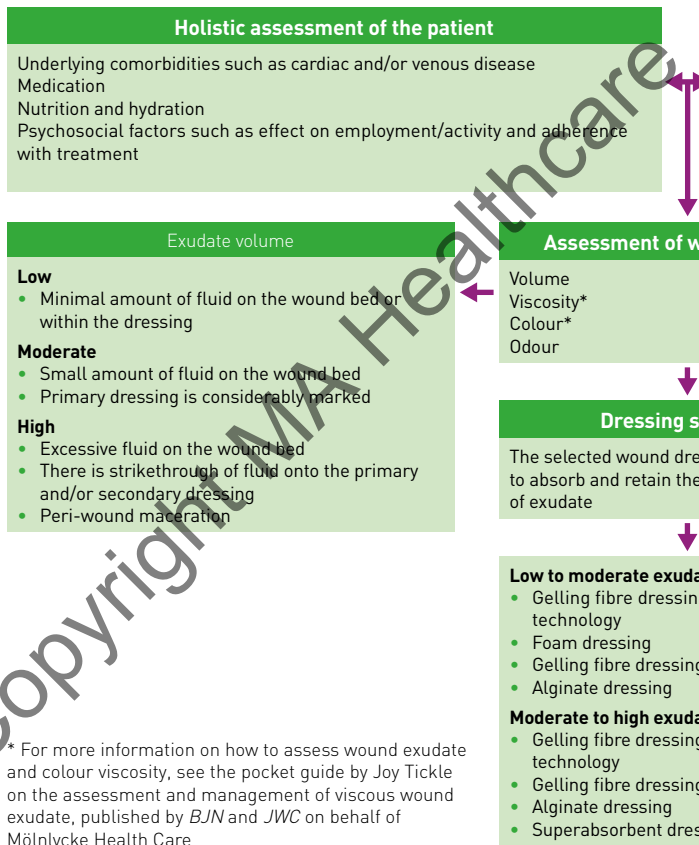
It is vital to be able to recognise the different characteristics of wound exudate, including its colour, volume and viscosity. Exudate assessment is not simple and is often subjective. Use of a wound exudate continuum, such as that in *Figure 1*, can assist with the assessment of exudate colour, volume and viscosity, and improve continuity of assessment between staff.

It is also important to treat the underlying wound aetiology and any intrinsic factors that might increase exudate production. Aetiologies associated with increased exudate are wound infection, oedema or underlying medical conditions, such as heart failure or lymphoedema (Stephen-Haynes, 2011). The following wound types produce high levels of exudate: leg ulcers, fungating wounds, burns, infected wounds and postoperative dehisced wounds (Gardner, 2012).



Example of an exuding wound.

Figure 1. Algorithm for the assessment



Assessment and management of wound exudate

Assessment of the wound

- Location, size and depth
- Stage of wound healing
- Static or delayed healing
- Wound bed and tissue type
- Signs of local wound infection/critical colonisation
- Condition of the peri-wound skin and surrounding skin

Wound exudate

Selection

Dressing must be able to manage the type and volume of exudate

Exudate volume

Managing with Hydrolock

Exudate volume

Managing with Hydrolock

Dressing pad

Level of moisture on the wound bed

Dry

- Wound bed is dry
- Peri-wound skin may be dry and scaly
- A dry wound bed is not conducive to normal wound healing: rehydrate it by using a dressing that donates moisture to the wound bed and thus promotes a moist wound environment

Moist

- The dressing might be lightly soiled
- The surrounding skin may be intact and hydrated
- This is the ideal wound healing environment

Saturated

- Excessive fluid is visible
- The primary dressing is wet and there might be strikethrough on the secondary dressing
- Possible peri-wound skin maceration/ excoriation

Management

Following a holistic assessment of the patient and the wound, it is essential that the level of moisture on the wound bed is optimised in order to encourage a moist wound environment. It is also important to ensure that the dressing selected for the management of a heavily exuding wound is fit for purpose. The attributes of an absorbent dressing relate to its ability to:

- Absorb and retain excess exudate, regardless of its consistency
- Prevent excoriation and maceration of the wound margins and surrounding skin
- Reduce the risk of infection by effectively managing moisture levels
- Promote a moist wound environment
- Facilitate patient comfort and improve quality of life
- Help prevent complications and optimise use of health-care resources [WUWHS, 2007; Thomas, 2008].

To ensure the selected dressing is effective, a clear understanding of its composition and mode of action is required. *Table 1* describes the composition and modes of action of dressings used to manage exudate.

Table 1. Modes of action of the different types of absorbent dressings	
Gelling fibre dressing with Hydrolock technology	Action: A fibre dressing containing strong polyvinyl alcohol (PVA) fibres entangled in all directions and mechanically secured to each other. The fibres transform into a gel on contact with wound exudate. The Hydrolock technology is designed to ensure a high retention capacity, absorbing and retaining exudate, bacteria and blood in one piece [Chadwick and McCardle, 2015]
Gelling fibre dressings	Action: A fibrous dressing that forms a hydrophilic gel when in contact with exudate. The fibres trap or 'lock' in exudate and its components and transmit moisture from the wound surface into the dressing
Foam dressings	Action: Absorbs exudate and allows moisture to evaporate through a polyurethane top film. Different foams have different levels of absorbency and ability to evaporate
Superabsorbents	Action: Wicks moisture from the wound bed and locks fluid within the superabsorbent particles
Alginates	Action: Changes from fibrous dressing into a hydrophilic gel, which fills the wound dead space

In order to achieve the objectives determined during assessment, it is necessary to assess the effectiveness of the absorbent dressing at each dressing change. This can be achieved by considering the factors in *Box 1*.

Box 1. How to determine the effectiveness of an absorbent dressing for individual wounds

- Has the exudate been absorbed and retained within the dressing?
- How saturated is the dressing? This involves considering its heaviness and the wear time
- Is there exudate strikethrough on the outer aspect of the dressing?
- Is there any leakage onto the peri-wound skin, such as excoriation/maceration?
- Can the dressing be removed atraumatically?

Conclusion

It is crucial to have the knowledge and skills to undertake a comprehensive and robust patient and wound/exudate assessment, to understand the essential role of exudate in wound healing and to be able to identify differences in exudate volume, colour and viscosity. These skills and knowledge will help the clinician implement an evidence-based management plan and ensure appropriate dressing selection. This can help facilitate wound healing and, most importantly, improve the patient's quality of life.

References

- Chadwick P, McCardle J (2015) Exudate management using a gelling fibre dressing. *The Diabetic Foot J* **18**(1): 43-8
- Gardner S (2012) Managing high exudate wounds: How to guide. *Wounds Essentials* **7**(1): <http://tinyurl.com/paropgn> [accessed 20 March 2016]
- McCarty SM, Percival SL (2013) Proteases and delayed wound healing. *Adv Wound Care (New Rochelle)* **2**(8): 438-47
- Stephen-Haynes J (2011) Managing exudate and the key requirements of absorbent dressings. *Br J Nurs* **16** (Suppl. 3): 44-9
- Thomas S (2008) The role of dressings in the treatment of moisture-related skin damage. *World Wide Wounds*. <http://tinyurl.com/65d25x> [accessed 20 April 2016]
- White R, Cutting K (2006) Modern exudate management: a review of wound treatments. *World Wide Wounds*. <http://tinyurl.com/6cfl0z> [accessed 20 March 2016]
- World Union of Wound Healing Societies (2007) *Principles of Best Practice: Wound Exudate and the Role of Dressings. A Consensus Document*. MEP, London. <http://bit.ly/1CUGoA8> [accessed 20 March 2016]
- Wounds UK (2013) *Best Practice Statement. Effective Exudate Management*. Wounds UK, London. <http://tinyurl.com/pyd4ty> [accessed 20 April 2016]



© MA Healthcare 2016

MA Healthcare Ltd, St Jude's Church, Dulwich Road, London. SE24 0PB
020 7501 6726 • www.markallengroup.com

Cover picture: iStockphoto. © simonkr

Easier removal¹ | Superior fluid retention²



The fibre dressing you would design

We discovered that fibre dressings could perform even better

From a recent survey of clinicians:



More than
1 in 3

said their current
fibre dressing
broke up during
removal³

More
than half

said that managing
leakage and
maceration were
key challenges³

Exufiber[®] is the highly absorbent gelling fibre dressing you and your patients deserve. It is used to manage moderately to highly exuding wounds.

Find out more at www.molnlycke.com

REFERENCES: 1. Chadwick P, McCardle J. Exudate management using a gelling fibre dressing. The Diabetic Foot Journal 2015; 18(1): 43-48. 2. Data-on-file report 20140806-001 Mölnlycke Health Care. 3. Mölnlycke Health Care data: Veeva Survey undertaken in UK, Sweden, Denmark, Finland, Norway and Latvia between September 2014 and July 2015.

Mölnlycke Health Care, Unity House, Medlock St, Oldham OL1 3HS Tel: 0800 7311 876 The Mölnlycke Health Care, Exufiber[®] and Hydrolock trademarks, names and logo types are registered globally to one or more of the Mölnlycke Health Care Group of Companies. © 2016 Mölnlycke Health Care AB. All rights reserved.

 **Exufiber[®]**
WITH HYDROLOCK TECHNOLOGY

 **MÖLNLYCKE
HEALTH CARE**