

Greetings everyone;

Continuing on with our theme on dressing selection for wound care, this article focuses on **hydrocolloid dressings**. Hydrocolloids have their advocates and dissenters. As noted previously, there is no one dressing or topical product that is ideal for any type of wound. In this article, the author makes a case, that under appropriate conditions, hydrocolloid dressings can be used for treatment of pressure ulcers.

Whilst the article can be read on a handheld mobile device (i.e. a smartphone), to view the tables in detail you may need to open it on a desktop device.

This material can be used in multiple ways: For example, treatment nurses are encouraged to read the emailed documents and discuss any questions they may have with the rounding staff from ASWC. Another approach would for the DON/charge nurses to discuss the article(s) with the treatment nurses and encourage group participation on the topic of interest.

If you would like to add your colleague(s) to the email list please visit www.advantagewoundcare.org and on the left-hand margin you will see “subscribe to our mailing list”. This is an evolving platform; with time we will add other useful features to facilitate continuing education.

Sincerely;

G.S. Dhillon MD PhD



The article is authored by Fletcher J and colleagues.

Pressure ulcers and hydrocolloids **made easy**

Volume 2 | Issue 4 | November 2011 www.woundsinternational.com



Introduction

Pressure ulcers pose a significant challenge to healthcare systems, and subject patients to considerable discomfort, pain and indignity. Although every effort should be made to prevent pressure ulcers, not all can be prevented. This article discusses the role of hydrocolloid dressings in the management of Category/Stage I and II pressure ulcers (Box 1).

Authors: Fletcher J, Moore Z, Anderson I, Matsuzaki K. Full author details can be found on page 5.

The scale of the problem

The true frequency and associated cost of pressure ulcers is not known. Estimates suggest that in Europe approximately 18% of inpatients may have a pressure ulcer¹. In 2004, it was estimated that the total cost of pressure ulcer care accounted for about 4% of UK National Health Service expenditure (approximately £2 billion)². Furthermore, in the UK between 2003 and 2008, pressure ulcers were directly attributed as a cause of death in 4,708 people³. In the USA, it is believed that in the hospital sector the costs associated with pressure ulcers may be as high as \$11 billion per annum⁴.

Hydrocolloids and pressure ulcers

Hydrocolloids are widely used in the management of pressure ulcers⁵. They have been recommended for use in Category/Stage II and III pressure ulcers⁶, and increasingly are being used in the management of Category/Stage I pressure ulcers⁷.

What is a hydrocolloid dressing?

Hydrocolloid dressings are made from a layer of gel-forming material attached to a semi-permeable film or foam backing. The gel layer comprises an adhesive matrix that contains a combination of absorbent materials such as sodium carboxymethylcellulose, pectin and gelatin. The resulting dressing is absorbent and self adhesive, even in moist conditions⁸.

Even though different hydrocolloid dressings may look similar, their fluid handling abilities can differ markedly⁹. Many hydrocolloid dressings are available in a variety of shapes, sizes and thicknesses. These may include products designed for specific anatomical areas (eg the sacrum or heel). Some products are very thin or have tapered edges that make them less likely to wrinkle, ruck or roll at the edges. These thinner products may also be semi-transparent allowing visualisation of the wound without the need to remove the dressing.

Variations in the backing materials may alter the 'slipperiness' of the dressing. Dressings that have a more 'slippery' outer surface reduce the coefficient of friction between the support surface and the patient, and so reduce the amount of shear and friction transmitted to the underlying skin. In this way, they may help to reduce the risk of further damage.

Many of the more recently available hydrocolloid dressings, including some thicker products, combine tapered edges and a smooth backing surface.

How do hydrocolloid dressings work?

Hydrocolloid dressings are believed to have a number of key

Box 1 Pressure ulcers: a definition and classification⁶

A localised injury to the skin and/or underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated.

NPUAP/EPUAP classification:

Category/Stage I: Non-blanchable redness of intact skin



Category/Stage II: Partial thickness skin loss or blister*



Category/Stage III: Full thickness skin loss (fat visible)



Category/Stage IV: Full thickness tissue loss (muscle/bone visible)



**Photograph used with the kind permission of Dale Copson, MSc, BSc(Hons) RN, Tissue Viability Nurse Specialist, formerly of Southern Derbyshire Acute Hospitals NHS Trust. Other photographs courtesy of ConvaTec.*

This is a general educational article on Hydrocolloids and pressure ulcers. Not all claims made herein are attributable to ConvaTec's hydrocolloid products.

Pressure ulcers and hydrocolloids made easy



properties that are useful in the management of pressure ulcers including:

- production of a moist wound environment
- management of exudate
- facilitation of autolytic debridement
- provision of a barrier to micro-organisms
- helping with pain management¹⁰.

Creating an optimal environment for healing

Hydrocolloid dressings create a moist wound environment that is known to be beneficial to wound healing¹¹. Specifically, hydrocolloids are believed to promote angiogenesis, increase the number of dermal fibroblasts, stimulate the production of granulation tissue, and increase the amount of collagen synthesised¹⁰.

Autolytic debridement

The moisture retentive properties of hydrocolloids help to gently soften and rehydrate necrotic tissue and slough, aiding autolytic debridement. This may take longer than sharp or biosurgical debridement (eg larval therapy), but may be more appropriate in some situations.

Prevention of infection and cross-infection

Hydrocolloids are adhesive and waterproof, and some hydrocolloids have been shown to act as a viral and bacterial barrier (eg to methicillin-resistant *Staphylococcus aureus* (MRSA), hepatitis B virus (HBV) and the human immunodeficiency virus (HIV-1)) provided the dressing remains intact and without leakage¹²⁻¹⁴. Hydrocolloid dressings may therefore be advantageous for use in areas such as the sacrum that are regularly subjected to heavy contamination. Several studies have examined whether the occlusive nature of hydrocolloid dressings increases the risk of infection. However, no evidence has been found to suggest that this is the case^{15,16}.

Protection of newly forming skin or Category/Stage I pressure ulcers

A hydrocolloid dressing with a smooth slippery backing reduces the friction coefficient of the patient-support surface interface¹⁷. The reduction in friction means that the patient is able to move more easily over the support surface and the area covered by the dressing is likely to be exposed to lower levels of pressure, shear and friction^{7,18}, reducing the risk of a Category/Stage I pressure ulcer progressing to deeper damage.

Semi-transparent hydrocolloid dressings may be used over reddened skin (Category/Stage I pressure ulcers) as it is possible to observe for deterioration without removing the dressing.

Box 2 Tips for pressure ulcer assessment

- Systematic assessment and monitoring of progress can be facilitated through the use of a validated wound assessment instrument⁶
- Use of photography (with appropriate consent) is helpful to provide a baseline, and a serial library, upon which improvement or deterioration may be determined¹⁹
- A standardised method for categorising/grading pressure ulcers should be employed
- Wound size should be monitored every one to two weeks; other wound characteristics should be monitored at each dressing change⁶
- During each assessment, care should be taken to identify and address specific patient concerns regarding treatments and wound status⁶
- Wounds that have been identified as healable, but that are not progressing within the first two weeks of treatment should have the plan of care re-evaluated and changes in patient specific characteristics assessed⁶

Pain management

The gel that forms during use of a hydrocolloid dressing makes removal easy and atraumatic. The moist, oxygen-depleted, environment produced by the dressing is thought to protect the nerve endings and so help to reduce pain in the wound bed^{20,21}.

What is the evidence?

Hydrocolloid dressings have been available for many years and have been extensively researched in a wide range of acute and chronic wound types. Many studies have confirmed that hydrocolloids are more effective than traditional dressings (such as gauze)¹⁰ (Table 1).

Principles of pressure ulcer management

Accurate and ongoing assessment of the individual and the wound are essential for effective pressure ulcer management²². Bearing in mind the negative impact pressure ulcers have on health-related quality of life²³, it is essential that a systematic approach to assessment is adopted (Box 2). Involvement of the patient and their family is central to ensuring that individual problems and concerns are addressed⁶.

Assessment should include consideration of all activities of daily living⁶. In addition, selection of the correct topical wound dressing/intervention is dependent on having a clear understanding of the goal of treatment²⁴. Development of the goal is facilitated through a detailed assessment of the wound, including the Category/Stage, location, size and shape, wound bed condition, exudate level and consistency, pain, malodour, peri-wound skin condition, and the presence or absence of infection⁶.

Table 1 Study summaries

Study reference	Therapy	Design	Selection criteria	Clinical outcomes
Hollisaz M, et al. <i>BMC Dermatology</i> 2004; 4: 18 ²⁵	Hydrocolloid dressing (n=31) vs phenytoin cream with gauze (n=30) vs simple dressing (wet gauze) (n=30)	Randomised clinical trial	Category/Stage I and II pressure ulcers in paraplegic males (n=83 with 91 ulcers)	More ulcers, regardless of location and Category/Stage, were completely healed in the hydrocolloid group than in the other groups
Chang KW, et al. <i>Med J Malaysia</i> 1998; 53(4): 428-31 ²⁶	Hydrocolloid (Duoderm CGF (ConvaTec) vs saline gauze	Randomised controlled trial	Category/Stage II or III pressure ulcers (n=34)	Adherence to wound bed, exudate handling, overall comfort and pain during dressing removal all significantly favoured hydrocolloid Mean reduction in surface area measurement was 34% for hydrocolloid. Patients treated with gauze experienced a mean 9% increase in surface area
Graumlich J, et al. <i>J Am Ger Soc</i> 2003; 51: 147-54 ²⁷	Hydrocolloid vs collagen	Randomised, parallel group, single blind, controlled trial	Category/Stage II (80%) or III (20%) pressure ulcers; median age 83.1 years	Healing rates and overall healing time were similar in both groups Costs were estimated as \$222 for hydrocolloid and \$627 for collagen per patient for 8 weeks
Meaume S, et al. <i>J Wound Care</i> 2002; 11(6): 219-24 ²⁸	Dressings used on venous leg ulcers and pressure ulcers	Development of cost-effectiveness models based on a literature review	The models were used to calculate cost per ulcer healed over a 12 week period	For pressure ulcers, a hydrocolloid (DuoDERM (ConvaTec) was most cost-effective in France
Kerstein M, et al. <i>Dis Manage & Health Outcomes</i> 2001; 9(11): 651-3 ²⁹	Pressure ulcer and venous leg ulcer protocols	Modelling study using outcomes from a literature review	The cost of 12 weeks of wound care was modelled for modalities with a pooled evidence base of at least 100 wounds	Costs per patient healed were lowest for pressure ulcers treated with hydrocolloids and highest for those treated with saline gauze due to differences in person-time required
Heyneman A, et al. <i>J Clin Nurs</i> 2008; 17(9): 1164-73 ³⁰	Hydrocolloid dressings	Systematic review of hydrocolloids in pressure ulcers	Randomised controlled trials of hydrocolloids in the treatment of pressure ulcers (28 studies in total)	Hydrocolloids had greater absorptive capacity, shorter time for dressing change and less pain during dressing changes than did gauze dressings Hydrocolloids seemed to be less expensive than collagen, saline and povidone soaked gauze, but more expensive than hydrogel, polyurethane foam and collagenase Hydrocolloids are more effective than gauze dressings for reducing wound dimensions, but less effective than alginates, polyurethane dressings, topical enzymes and biosynthetic dressings

When to use hydrocolloids for pressure ulcer management?

The management of individuals with pressure ulcers involves a myriad of interventions such as optimising nutrition, repositioning and use of specialised beds, mattresses and cushions, in addition to skin and continence care^{7,31}. Priority should be given to relieving the cause of pressure and to dealing with any general factors such as nutrition that may delay the process of healing. Local wound care should focus on achieving the optimum environment to facilitate healing and to achieve any other patient focused outcomes, such as relief of pain and reduction of exudate production.

Hydrocolloid dressings are believed to have a number of key properties that are useful in the management of pressure ulcers, eg:

- **protection of periwound skin**
- **removal of necrotic tissue and slough**
- **maintenance of a moist wound bed without over-hydrating the wound²².**

There is much debate within the literature as to the role of specific dressing types in addressing these issues in pressure ulcers^{30,32,33}. Currently, hydrocolloid dressings are widely used in individuals with Category/Stage II pressure ulcers. They are also used as primary dressings in the management of Category/Stage III and IV pressure ulcers that are healing well and have become shallow. Hydrocolloids create a moist wound-dressing interface, facilitate autolysis and promote granulation tissue production, so creating an optimal local wound environment that is thought to be conducive to wound healing³⁰.

Thin hydrocolloid dressings (eg DuoDERM® Signal™ and DuoDERM® Extra Thin) are increasingly used in the management of Category/Stage I pressure ulcers. The slippery outer surface assists in reducing friction or shear to the underlying skin to protect it against further damage⁷.

The moisture control provided by the hydrocolloid dressing may also have a role in maintaining tissue integrity and preventing deterioration of Category/Stage I pressure ulcers by preventing

maceration. Good absorbency has been identified as an ideal characteristic of a dressing used for pressure ulcer prevention³⁴. In addition, thin hydrocolloids are much easier to handle than are film dressings because they are less likely to fold on themselves.

Irrespective of the stage of healing, hydrocolloids are also useful as a secondary dressing because of their waterproof backing and ability to reduce shear and friction. The interaction between the hydrocolloid and the primary cavity filler must always be considered. For example, a hydrocolloid, Hydrofiber® or alginate cavity filler may be usefully covered with a hydrocolloid dressing, but amorphous gels tend to produce too wet an environment for a hydrocolloid dressing to manage.

Protection of periwound skin

Hydrocolloid dressings generally overlap the wound edge and extend onto healthy skin and protect periwound skin by:

- **providing a protective covering to the healthy periwound skin**

- **absorbing wound exudate, so keeping excessive moisture and potentially damaging proteolytic enzymes away from healthy skin³⁵.**

Autolytic debridement

In the presence of devitalised tissue, hydrocolloid dressings facilitate autolytic debridement by creating a moist wound–dressing interface¹⁰. However, the decision to use a hydrocolloid dressing will depend on the level of exudate in the wound. If the wound has low to moderate exudate a hydrocolloid may be an appropriate treatment choice, but if the wound has a high level of exudate, a more absorbent primary dressing may be needed⁹.

Moist wound healing

The gel formed when exudate is absorbed by a hydrocolloid maintains a moist wound–dressing interface while preventing fluid accumulation on the wound surface. Hydrocolloids are therefore also of value in the management of clean shallow granulating pressure ulcers.

Indeed, a systematic review noted that hydrocolloids were more effective than gauze dressings for enhancing wound healing, and were associated with lower levels of pain and reduced time for dressing changes³⁰.

Practicalities

Selecting a hydrocolloid dressing

Thicker hydrocolloid dressings are most appropriate for moderate levels of exudate. Conversely, if exudate levels are low or the dressing is being applied to skin at risk of further breakdown, a thin dressing may be most appropriate. Similarly, as the pressure ulcer heals and exudate levels drop, it may be necessary to use a thinner dressing.

Hydrocolloid dressings are not designed to be used with a secondary dressing. If exudate levels are high, an alternative dressing may be needed.

Where the skin is at risk of breakdown, ie in Category/Stage I pressure ulcers, choosing

Hydrocolloids and pressure ulcers case study

Mr I was a 70 year old man with gastric carcinoma and metastases who was hospitalised for treatment of dyspnoea and terminal cancer pain. Although a film dressing was applied to the sacral area and an advanced air mattress was used, a sacral pressure developed one month after hospitalisation. The total area was 45cm² (Category/Stage I: 30cm²; Category/Stage II: 15cm²) (Figure 1).

Because Mr I was very thin, polyurethane sponge padding was applied around the sacral area to protect the bony prominences. The wound was dressed twice weekly with a thin hydrocolloid dressing.

The Category/Stage I area of the pressure ulcer had healed and the Category/Stage II areas were showing signs of improvement on the seventh day after treatment started (Figure 2). The Category/Stage II areas were completely healed when the dressing was changed on the fourteenth day after treatment had started (Figure 3). Sadly, Mr I died from gastric carcinoma 17 days later.

Fig 1: Sacral pressure ulcer – Category/Stage I and II



Fig 2: After seven days of treatment with a thin hydrocolloid dressing the Category/Stage I area was healed



Fig 3: After 14 days of treatment the pressure ulcer the Category/Stage II area was fully healed



Photographs courtesy of K Matsuzaki

a thin hydrocolloid dressing (eg DuoDERM® Signal™ or DuoDERM® Extra Thin) will reduce the chances of it wrinkling and rucking and causing further problems⁷.

Applying hydrocolloid dressings

The hydrocolloid dressing selected should be an appropriate size and shape for the wound, and overlap onto normal skin for about 3cm (1.25 inches) around the wound.

Hydrocolloid dressings should be warmed between the hands before application. Warming enhances the adhesiveness and pliability of the dressing, allowing it to better conform to the wound contours. Generally, it is advised that the patient does not put weight over the dressing for 20-30 minutes after application to give the dressing time to stick properly³⁶.

If leakage is or may be a problem from one side of the dressing, eg due to gravity, consider applying the dressing so that there is greater overlap onto the skin on that side³⁶. Dressings with tapered edges are less likely to wrinkle, ruck or roll up. Hydrocolloid dressings are waterproof: patients can continue to shower or bath with the dressing *in situ*.

Frequency of dressing change

In general, hydrocolloid dressings are changed every three to five days, although some may be able to stay in place for up to seven days. However, more frequent changes may

be required if exudate production is high, eg at the start of treatment, or if infection is suspected.

Removing hydrocolloid dressings

Unless early removal is required for clinical reasons, hydrocolloid dressings should stay in place until the gel bubble that forms comes close to the edge of the dressing³⁶. The gel will allow easy and atraumatic removal of the dressing. If removal is required before the gel bubble has formed, careful removal by lifting the edge and peeling away the hydrocolloid while moistening the skin is recommended³⁶. Some dressings incorporate a system to indicate when dressing change is required (eg DuoDERM® Signal™).

For how long should a hydrocolloid be used?

The use of a hydrocolloid in the treatment plan may be continued as long as the dressing meets the clinical objectives. At each dressing change the wound and other clinical parameters should be assessed to determine what adjustments are required to the current plan of care⁶. The use of a systematic approach to assessment is particularly useful, ideally with use of a reliable and valid assessment tool⁶.

At all times, careful documentation of the patient and wound is essential to enhance communication, provide a rationale for decision making and to demonstrate the

delivery of high quality care³⁷. Hydrocolloid dressings can be used on pressure ulcers to the point of wound closure.

Cost-effectiveness

Hydrocolloids have been shown to be more cost effective than gauze in the treatment of pressure ulcers^{28, 29} (Table 1). This appeared to be mainly due to the lower clinical contact time required during treatment with a hydrocolloid dressing.

Author details

Fletcher J¹, Moore Z², Anderson I³, Matsuzaki K⁴.

1. Senior Lecturer, Section of Wound Healing, Department of Dermatology and Wound Healing, School of Medicine, Cardiff University, Cardiff, UK, and Fellow, National Institute for Health and Clinical Excellence, UK
2. Immediate Past President of EWMA and Lecturer in Wound Healing & Tissue Repair and Research Methodologies, Royal College of Surgeons, Ireland
3. Programme Tutor, Tissue Viability, and Reader in Learning and Teaching in Healthcare Practice, University of Hertfordshire, Hatfield, UK
4. Associate Professor, Department of Plastic and Reconstructive Surgery, St Marianna University School of Medicine, and Department of Plastic and Reconstructive Surgery, Kawasaki Municipal Tama Hospital, Miyamae, Kawasaki, Japan.

Supported by an educational grant from ConvaTec. The views expressed in this 'Made Easy' section do not necessarily reflect those of ConvaTec. Reprinted with permission of Wounds International.

(®/™ unless otherwise stated indicates the trademark of ConvaTec Inc.)

Summary

Pressure ulcers are a widespread problem and are highly costly in terms of resource usage and detrimental effect on quality of life. Hydrocolloid dressings promote moist wound healing, manage exudate, aid autolytic debridement and assist with pain management. They may also be used as a primary dressing for Category/Stage I or II pressure ulcers, shallow Category/Stage III or IV pressure ulcers, and for newly formed skin. The shiny outer surface and tapered edges of some newer hydrocolloid dressings help to protect tissues from further pressure-related damage by reducing the effects of pressure, shear and friction, and reducing the likelihood of rucking, wrinkling or edge rolling.

To cite this publication

Fletcher J, Moore Z, Anderson I, Matsuzaki K. Hydrocolloids and pressure ulcers Made Easy. *Wounds International* 2011; 2(4): Available from: <http://www.woundsinternational.com>

References

1. Vanderwee K, Clark M, Dealey C, et al. Pressure ulcer prevalence in Europe: a pilot study. *J Eval Clin Pract* 2007; 13: 227-35.
2. Bennett G, Dealey C, Posnett J. The cost of pressure ulcers in the UK. *Age Ageing* 2004; 33(3): 230-35.
3. Hospitals 'name and shamed' on bedsores record which costs NHS £4bn a year. *The Telegraph*, 4 Jul 2011. Available at: <http://www.telegraph.co.uk/health/healthnews/8613764/Hospitals-named-and-shamed-on-bedsores-record-which-costs-NHS-4bn-a-year.html> (accessed 10 October 2011).
4. Bales I, Padwojski A. Reaching for the moon: achieving zero pressure ulcer prevalence. *J Wound Care* 2009; 18(4): 137-44.
5. Lohi J, Sipponen A, Jokinen JJ. Local dressings for pressure ulcers: what is the best tool to apply in primary and second care? *J Wound Care* 2010; 19(3): 123-27.
6. European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. *Treatment of pressure ulcers: Quick Reference Guide*. Washington DC: National Pressure Ulcer Advisory Panel; 2009. Available at: http://www.epuap.org/guidelines/Final_Quick_Treatment.pdf (accessed 23 September 2011).
7. Wicks G. A guide to the treatment of pressure ulcers from grade 1–grade 4. *Wound Essentials* 2007; 2: 106-13.
8. Heenan A. Frequently asked questions: hydrocolloid dressings. *World Wide Wounds*, 1998. Available at: <http://www.worldwidewounds.com/1998/april/Hydrocolloid-FAQ/hydrocolloid-questions.html> (accessed 27 September 2011).
9. Thomas S, Loveless P. A comparative study of the properties of twelve hydrocolloid dressings. *World Wide Wounds* 1997. Available at: <http://www.worldwidewounds.com/1997/july/Thomas-Hydrone/hydrone.html> (accessed 27 September 2011).
10. Queen D. Technology update: Understanding hydrocolloids. *Wounds International* 2009; 1(1). Available at: <http://www.woundsinternational.com/article.php?issueid=1&contentid=129&articleid=229> (accessed 23 September 2011).
11. Finnie A. Hydrocolloids in wound management: pros and cons. *Br J Community Nurs* 2002; 7(7): 338-42.
12. Wilson P, Burroughs D, Dunn J. Methicillin-resistant *Staphylococcus aureus* and hydrocolloid dressings. *Pharm J* 1988; 243: 787-88.
13. Lawrence JC. Reducing the spread of bacteria. *J Wound Care* 1993; 2: 48-52.
14. Bowler PG, Delargy H, Prince D, Fondberg L. The viral barrier properties of some occlusive dressings and their role in infection control. *Wounds* 1993; 5(1): 1-8.
15. Knowles EA, Westwood B, Young MJ, Boulton AJM. A retrospective study of the use of Granuflex and other dressings in the treatment of diabetic foot ulcers. *Proceedings of the 3rd European Conference on Advances in Wound Management*; 19-22 October 1993. London: Macmillan, 1993; 117-20.
16. Boulton AJ, Meneses P, Ennis WJ. Diabetic foot ulcers: a framework for prevention and care. *Wound Repair Regen* 1999; 7(1): 7-16.
17. Nakagami G, Sanada H, Konya C, et al. Comparison of two pressure ulcer preventive dressings for reducing shear force on the heel. *J Wound Ostomy Continence Nurs* 2006; 33(3): 267-72.
18. Ohura T, Takahashi M, Ohura N Jr. Influence of external forces (pressure and shear force) on superficial layer and subcutis of porcine skin and effects of dressing materials: are dressing materials beneficial for reducing pressure and shear force in tissues? *Wound Repair Regen* 2008; 16(1): 102-7.
19. Localio RA, Margolis D, Kagan SH, et al. Use of photographs for the identification of pressure ulcers in elderly hospitalized patients: validity and reliability. *Wound Repair Regen* 2006; 14: 506-13.
20. Wyatt D, McGowan DN, Najarian MP. Comparison of a hydrocolloid dressing and silver sulfadiazine cream in the outpatient management of second-degree burns. *J Trauma* 1990; 30(7): 857-65.
21. Nemeth AJ, Eaglstein WH, Taylor JR, et al. Faster healing and less pain in skin biopsy sites treated with an occlusive dressing. *Arch Dermatol* 1991; 127(11): 1679-83.
22. Fletcher J. Wound assessment and the TIME framework. *BJN* 2007; 16(8): 462-66.
23. Gorecki C, Brown JM, Nelson EA, et al. Impact of pressure ulcers on quality of life in older patients: a systematic review. *J Am Geriatr Soc* 2009; 57: 1175-83.
24. Gray D, White R, Cooper P, Kingsley A. Applied wound management and using the wound healing continuum in practice. *Wound Essentials* 2010; 5: 131-39.
25. Hollisaz MT, Khedmat H, Yari F. A randomized clinical trial comparing hydrocolloid, phenytoin and simple dressings for the treatment of pressure ulcers. *BMC Dermatology* 2004; 4(18): unpaginated.
26. Chang KW, Alsagoff S, Ong K, Sim PH. Pressure ulcers – randomised controlled trial comparing hydrocolloid and saline gauze dressings. *Med J Malaysia* 1998; 53: 428-31.
27. Graumlich JF, Blough LS, McLaughlin RG, et al. Healing pressure ulcers with collagen or hydrocolloid: a randomized, controlled trial. *J Am Geriatr Soc* 2003; 51(2): 147-54.
28. Meaume S, Gemmen E. Cost-effectiveness and wound management in France: pressure ulcers and venous leg ulcers. *J Wound Care* 2002; 11(6): 219-24.
29. Kerstein M, Gemmen E, van Rijswijk L, et al. Cost and cost effectiveness of venous and pressure ulcer protocols of care. *Dis Manage Health Outcomes* 2001; 9(11): 651-63.
30. Heyneman A, Beele H, Vanderwee K, Defloor T. A systematic review of the use of hydrocolloids in the treatment of pressure ulcers. *J Clin Nurs* 2008; 17: 1164-73.
31. Moore Z, Cowman S. The role of nutrition in the prevention and management of pressure ulcers. *Geriatrics and Aging* 2008; 11: 295-98.
32. Bouza C, Saz Z, Muñoz A, Amate J. Efficacy of advanced dressings in the treatment of pressure ulcers: a systematic review. *J Wound Care* 2005; 14(5): 193-99.
33. Gray M, Weir D. Prevention and treatment of moisture-associated skin damage (maceration) in the periwound skin. *J Wound Ost Continence Nurs* 2007; 34(2): 153-57.
34. Butcher M, Thompson G. Pressure ulcer prevention: can dressings protect from pressure ulcer damage? An advertorial. *Wounds International* 2009; 1(1). Available at: <http://www.woundsinternational.com/article.php?contentid=122&articleid=8793&page=3> (accessed 21 September 2011).
35. Thomas S. The role of dressings in the treatment of moisture-related skin damage. *World Wide Wounds* 2008. Available at: <http://www.worldwidewounds.org/2008/march/Thomas/Maceration-and-the-role-of-dressings.html> (accessed 27 September 2011).
36. Fletcher J. The benefits of using hydrocolloids. *Nursing Times* 2003; 99(21): 57.
37. Dimond B. Pressure ulcers and litigation. *Nursing Times* 2003; 99(5): 61-63.



Hydrocolloids: Comfeel, Duoderm, Cutinova Hydro

Advantages

- Hydroactive particles absorb wound exudate
- Gel formation at wound surface provides moist wound environment
- Water repellent
- Conforms well to wound and body surfaces
- Reduces pain by keeping nerve endings moist
- Hydrocolloid interactions clean and debrides the wound by autolysis
- Safe debridement, granulation and epithelialization can occur in wound at the same time

Disadvantages

- Not recommended on wounds clinically infected with anaerobic bacteria
- Use with caution on fragile or compromised skin surrounding wound as
- Adhesive may damage fragile skin
- Gel may be mistaken for wound infection
- Deep wounds require cavity filling paste, powder or dressing
- May be difficult to keep in place in areas affected by friction eg. heels
- Edges may roll (can tape to prevent this)

cheatography.com by DavidPol





Hydrocolloids in practice

Pressure Ulcers, Skin integrity | Ousey K, Cook L, Young T, Fowler A

When not to use a hydrocolloid

- Clinically infected wounds (unless used in conjunction with appropriate treatment such as systemic antibiotics. Occlusive dressings such as hydrocolloids should not be used in the presence of anaerobic bacterial infection)
- Full thickness burns
- Exposed bone and tendon
- Ulcers resulting from diabetes, tuberculosis, syphilis or fungal infection
- Active vasculitis
- Deep narrow sinuses
- Where there is a possibility of the wound becoming necrotic due to poor vascularisation