A transformative wound management approach with BMG technology – Final report of a national 80 patient case study series

Lead Author: Joy Tickle, Tissue Viability Nurse Consultant (ISLE OF WIGHT NHS TRUST) joy.tickle1@nhs.net **Co Authors:** Samantha Wharton, samantha.wharton1@nhs.net, Gillian Dixon, gillian.dixon4@nhs.net (BUCKINGHAMSHIRE HEALTHCARE NHS TRUST) Kate Lewis (WEST LANCS HCRG CARE GROUP) Kate.Lewis@hcrgcaregroup.com, Andrew Sharpe (SALFORD HEALTH AND CARE TRUST) Andrew.Sharpe@nca.nhs.uk Keith Moore (BRIDGEWATER COMMUNITY HEALTHCARE NHS FOUNDATION TRUST) keith.moore@nhs.net Tanya Brandon (NHS LOTHIAN) Tanya.Brandon@nhslothian.scot.nhs.uk, Susy Pramod (THE CHRISTIE NHS FOUNDATION TRUST) susy.pramod@nhs.net, Karen Staines (ACCELERATE CIC) karen.staines@nhs.net Rosie Callaghan, rosiecallaghan@nhs.net Jayne Thomas, jayne.thomas11@nhs.net, Bridget Blount, bridget.blount@nhs.net, Teresa Bentham , teresa.bentham1@nhs.net (HEREFORDSHIRE AND WORCESTERSHIRE HEALTH AND CARE NHS TRUST)

Introduction

Affecting approximately 3.8 million people in the UK, chronic wounds can heavily impact a person's life. Patients with a wound experience pain, discomfort and loss of mobility which can affect their quality of life and, in severe cases, be debilitating. Unhealed wounds can also have a notable effect on a person's mental health, with patients experiencing issues such as depression and anxiety (Fearns, N et al 2017). A chronic wound should prompt the healthcare professional to begin a search for unresolved underlying causes. Healing requires care that is patient centred, holistic, interdisciplinary, cost effective and evidence based. Underlying causes and factors interfering with wound healing may be multifactorial. It is well accepted that wounds heal in four phases: Haemostasis, Inflammation, Proliferation and Maturation, chronic wounds being no exception. Advancing technologies can facilitate healing by providing solutions against barriers to healing, augmentation of wound healing factors, and optimization of the ultimate results of wound reconstruction. Wound healing is not linear and often wounds can progress both forwards and backwards through the phases depending upon intrinsic and extrinsic forces. (Shanker, M 2014) Bioactive Microfibre Gelling (BMG™) technology in the evaluated advanced woundcare dressing utilizes chitosan to maintain a cohesive structure increasing fluid handling, antimicrobial and wound healing properties. Chitin and chitin derivatives have been reported to promote rapid dermal regeneration and accelerate wound healing. (Dai, T et al 2011)

Method

Following local guidelines and obtaining Trust and patient consent, the aim was to assess the performance of a BMG technology dressing across various wound types in a variety of clinical settings. **Primary objective** - to assess overall clinical acceptability for indications treated. **Secondary objectives** - assessing dressing performance characteristics, determining changes in wound outcomes over the course of treatment, and clinicians' level of satisfaction with product characteristics. Eighty-two adult patients, with a total of eighty-nine wounds, were recruited from twelve clinical settings. Patients were reviewed weekly for a period of 4 weeks which was sufficient to provide information on product and clinical performance. Dressing changes were made at the clinicians' discretion. CD Medical provided clinical and training support and samples of dressings throughout the 4-week study duration per patient.

Of the patients recruited, wound types included; diabetic foot ulcers (8%) venous leg ulcers (20%) oncology wounds (17%) trauma wounds (5%) pressure ulcers (25%) and others (25%) (Fig 1). Wounds categorised as 'Others' include, but are not limited to; surgical wounds, pyoderma gangrenosum, mixed aetiology leg ulcers. Wound duration at initial assessment ranged from 0.5 months (3%) to over 12 months (27%) (Fig 2.)

Fig 1. Wound types included in evaluation

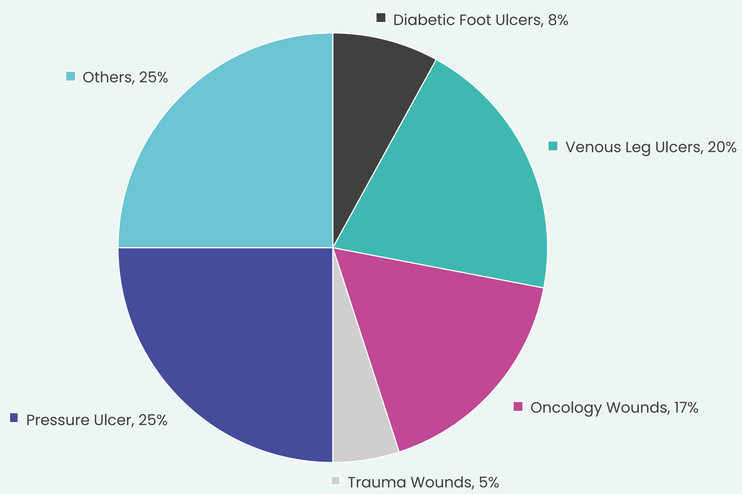
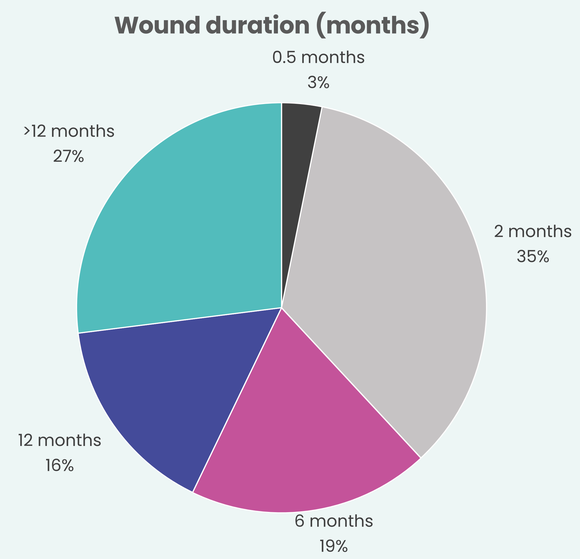


Fig 2. Wound duration (months) at initial assessment



References: (1) Fearns, N., Heller-Murphy, S., Kelly, J., Harbour, J. Placing the patient at the centre of chronic wound care: A qualitative evidence synthesis. Journal of Tissue Viability, Vol 26, Issue 4, Nov 2017 pp 254-259. (2) Wound Healing and its importance - A review, Shankar M. et al. / Der Pharmacologia Sinica. 2014;1(1):24-30.0 (3) Dai T, Tanaka M, Huang VY, Hamblin MR. Chitosan preparations for wounds and burns: antimicrobial and wound-healing effects. Expert review of anti-infective therapy. 2011 Jul 1;9(7):857-79. (4) CD Medical, Data on file.

MaxioCel® is the Bioactive Microfibre Gelling (BMG) dressing referenced throughout.

This poster has been made possible by support from Axio Biosolutions Pvt and CD Medical Ltd

Results

Results showed that the BMG dressing :

- Was suitable for the wound type treated.
- Demonstrates a significant reduction in wound area, depth, and devitalised tissue by the final assessment (week 4).
- Supports a reduction in exudate levels (Fig 5).
- Facilitates a reduction in wound pain, as recorded by visual analogue scale (Fig 7).
- Supports an improvement in the condition of periwound skin, with a reduction in patients experiencieing inflamed, macerated and dry, flaky periwound skin by final assessment (Fig 6).
- Aids autolytic debridement, with a direct correlation between reductions in slough and necrotic tissue and increases in granulation and epithelialization (Fig 3).
- Facilitates one piece dressing removal, with no reports of pain upon removal, therefore no trauma to the wound or periwound.

Clinicians rated the dressing as being easy to apply and remove and satisfactory or exceeding expectations for each product performance parameters assessed (Fig 8). The high level of acceptability reported by clinicians suggests that the inclusion of a BMG technology dressing may enhance patient comfort.

Discussion

Study data supports the use of BMG technology dressings across various wound types and clinical settings. The high absorbency gelling fibres of this BMG dressing decreased risk of periwound skin damage. Pathogens are sequestrated and trapped as BMG fibres are positively electrostatically charged and naturally attract the negatively charged pathogens (CD Medical, Data on file). Exudate reduction, even in chronic and malignant wounds of long duration, confirms the ability of the dressing to handle exudate well, hence reducing the bioburden meaning wounds are more likely to heal. The BMG dressing helps to initiate haemostasis by attracting blood cells and other beneficial cells to the wound. It also aids autolytic debridement, helping to remove slough and necrotic tissue, and accelerating granulation and re-epithelialisation.

Conclusion

The BMG dressing demonstrated effectiveness in conjunction with routine clinical practice in improving wound outcomes. Significantly improving the wound bed condition and reduction in wound pain within 2 weeks of dressing application. By sharing experiences from a national perspective, the authors can validate how this advanced woundcare dressing supports the wound healing process.

Analysis of the data from this multicentre study continues and will be published, alongside case studies and pathways, in Autumn 2023.

Fig 3. Change in wound bed tissue type over 4 week evaluation

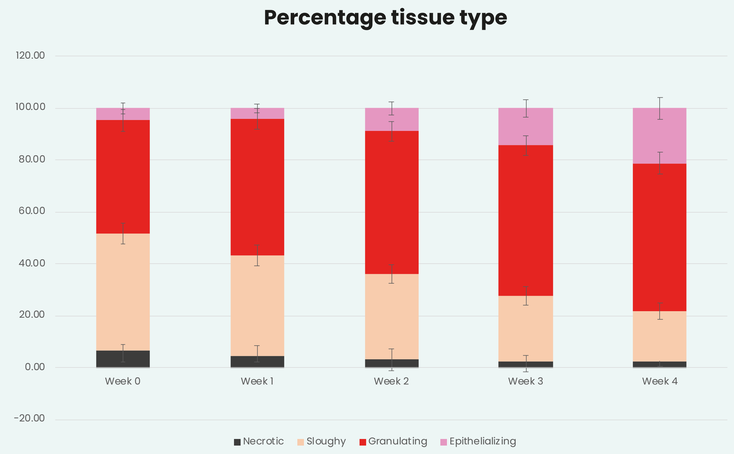


Fig 4. Wound area reduction (%) over a 4 week evaluation period

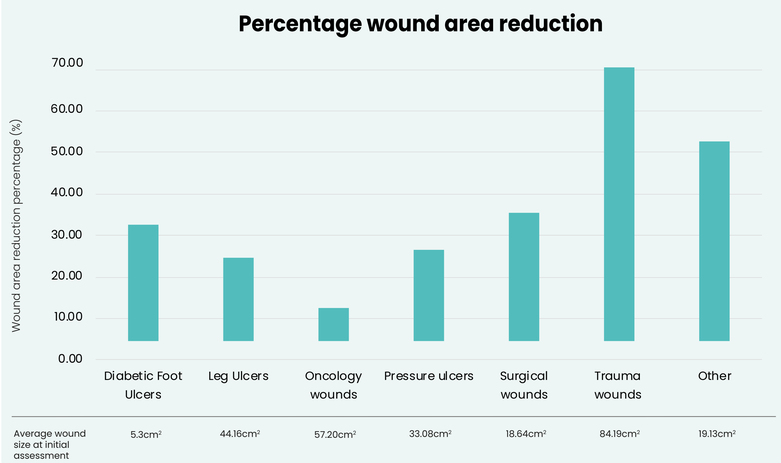


Fig 5. Change in exudate levels over a 4 week evaluation period

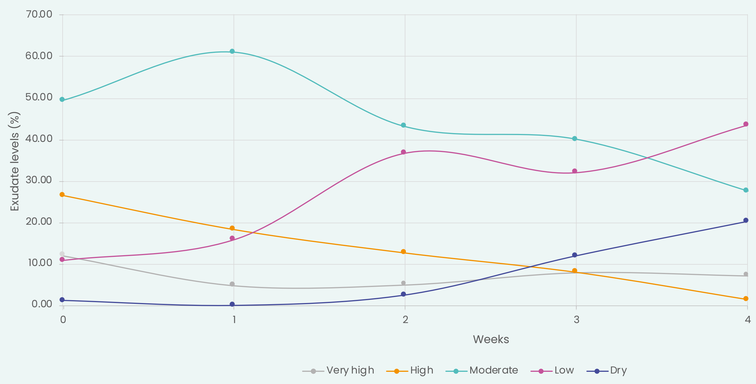


Fig 6. Change in periwound skin condition over a 4 week evaluation period

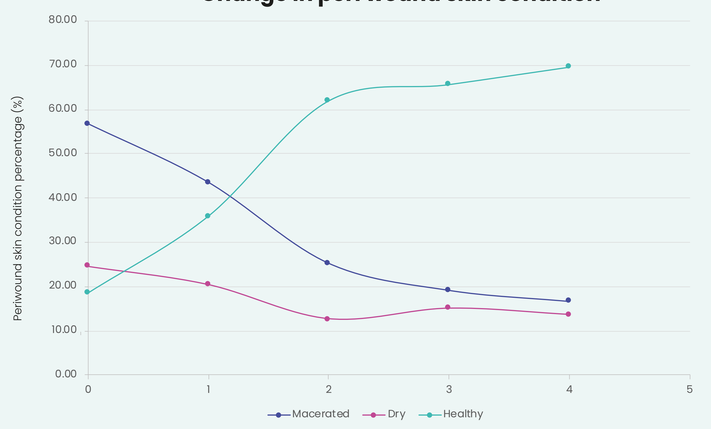


Fig 7. Change in patient reported pain levels (on visual analogue scale) over 4 week evaluation period

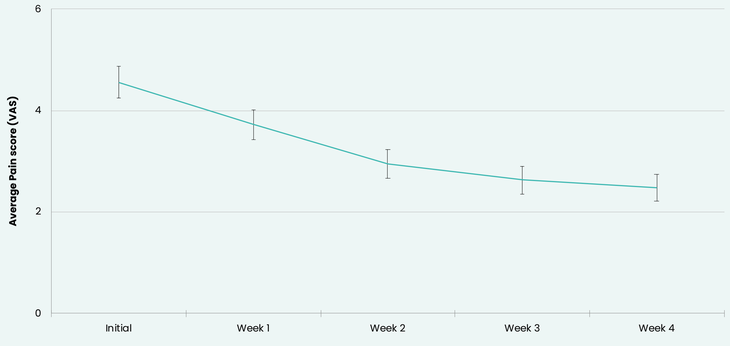


Fig 8. Clinician evaluation of dressing performance characteristics