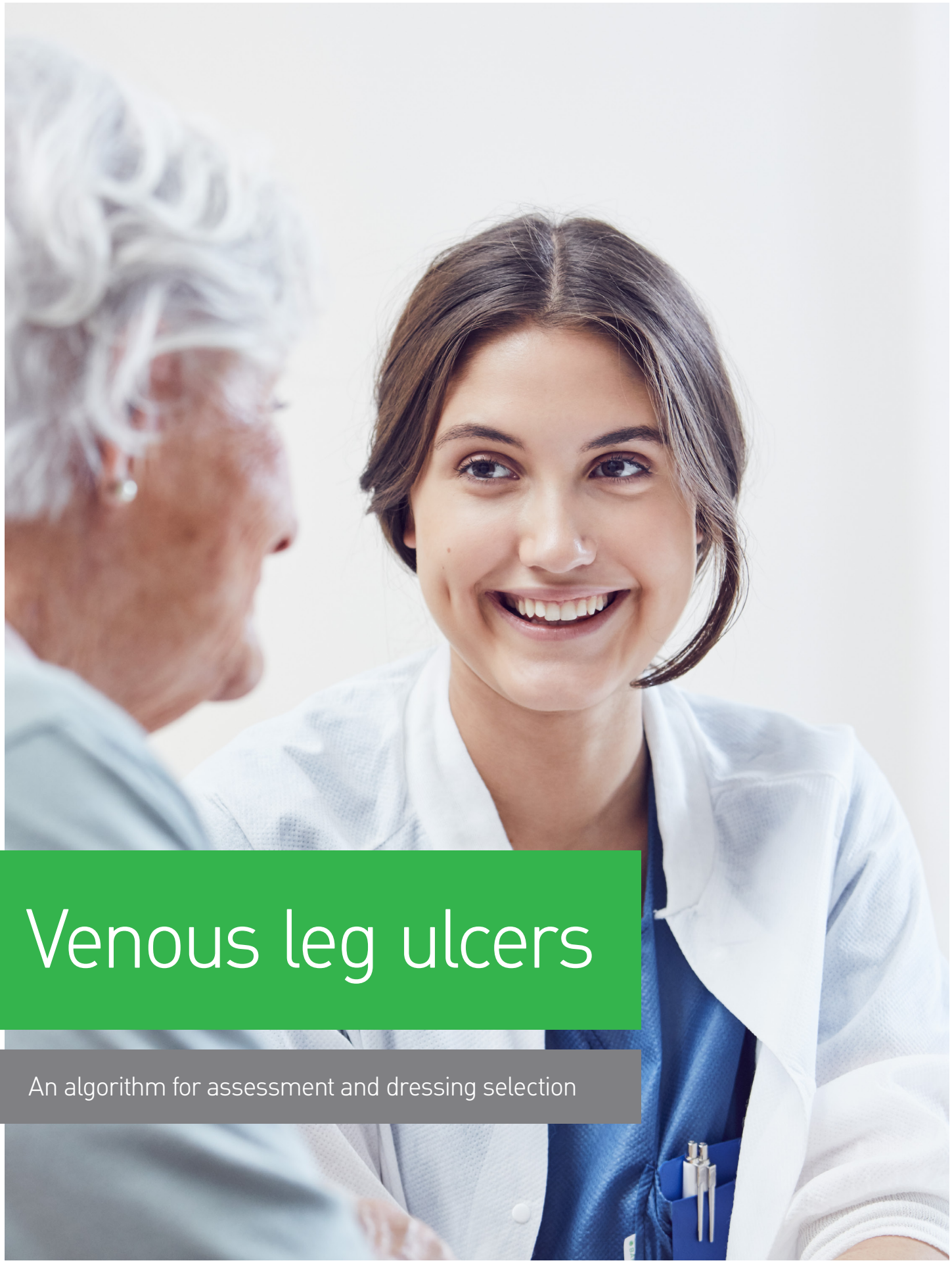


Venous leg ulcers

An algorithm for assessment and dressing selection

Mölnlycke®

Holistic assessment and manageme

Assessment of patients and lower limb

1 Medical history

- Physical, physiological and psychosocial health

2 Lower limb assessment

Signs of venous disease e.g.:

- Oedema
- Eczema
- Lipodermatosclerosis
- Altered shape – inverted 'champagne bottle'
- Varicose veins
- Ankle flare (distended veins in foot arch or ankle region)
- Haemosiderin pigmentation
- Atrophie blanche
- Other skin changes
- Evidence of healed ulcers

3 Vascular status and oxygenation levels

ABPI assessment with a Doppler. Referral to vascular specialist when ABPI: <0,8 or >1.4 or absolute systolic ankle pressure <60mmHg. When ABPI ≤0.5 urgent referral to vascular surgeon. A patient with an ulcer should be referred to vascular centre for consideration of venous interventions.

- Toe-brachial index (TBI) when ABPI: <0,8 or >1.4
- Consider oxygen assessment e.g. with transcutaneous oximetry ($TcPO_2$)

4 Wound and periwound

Infection:
Local signs of infection can be: increased exudate, non-healing, malodour, friable or discoloured granulation tissue, redness, pain, heat and swelling.

Wound bed, status/colour:
- Yellow slough
- Red granulation tissue, pink epithelialisation

Exudate
- Amount (none, low, moderate, high)
- Consistency/colour

- **Wound location**
- **Wound size (area/depth)**
- **Wound edge** (raised edge, undermining)
- **Surrounding skin** (maceration/excoriation, erythema, oedema)
- **Pain** (location, frequency, cause, type, intensity and duration)
- **Odour** (presence and nature)

5 Classification

Classification of Chronic venous insufficiency (CVI) with CEAP clinical classification. And Classification of the VLU as Simple or Complex.

Goals of treatment, education and concordance with the patient

Management of VLU[3,4]

A VLU has a negative impact on all aspects of the patients daily living and need to be considered in the treatment plan. VLU may cause depression, anxiety and social isolation, but also leaking exudate, pain, odour, restricted mobility and sleep disturbance may be particularly challenging and distressing for these patients.

- A Multidisciplinary team (MDT) can be a resource for planning and treat a patient with VLU, for example
- Recommend the best compression therapy for the individual
- Nutritional advice
- Infection control and treatment
- Full vascular assessment and treatment
- Assessment and treatment of different skin problems

Remember:[2-4]

- Assess and manage pain (local and systemic) before dressing changes.
- Be aware of mixed aetiology that includes venous disease. For example if other factors are present, e.g arterial disease, diabetes or rheumatoid arthritis (vasculitic ulcer).
- Wound biopsy may be indicated in patients who have delayed healing and a wound suspected of being malignant.
- Education and training of the patient, caregiver and family is essential in enhancing concordance.
- Reassess if wound area reduction is less than 20–30% after 4–6 weeks of optimal compression treatment.

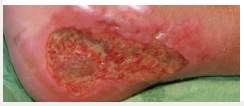
nt of patients with venous leg ulcers

Mölnlycke dressing selection guide

Infection

Requirement for antimicrobial	**No** requirement for antimicrobial

Wound bed

Red or Yellow	Red or Yellow
	



Appropriate debridement in combination with cleansing with Granudacyn®



Topical oxygen therapy with Granulox® If area reduction ≤40% after 4 weeks standard therapy[1]

Exudate level

 Mepilex® Ag	 Mepilex® Border Lite
 Mepilex® Ag	Mepilex® XT
 Mepilex® Border Ag	For yellow wounds  Exufiber® Ag+ Mepilex® Border Flex
 Mepilex® Border Flex	For yellow wounds  Exufiber® Mepilex® Border Flex
 Mepilex® Transfer Ag +  Mextra® Superabsorbent	 Mepilex® Transfer +  Mextra® Superabsorbent

Use an appropriate moisturiser

ABPI assessment and compression therapy

Use an appropriate compression therapy (CT)[2], when needed use Tubifast® as an inner layer.

Doppler ABPI	0.51–0.79 Moderate PAD	0.8–0.90 Mild PAD	0.91–1.4 Borderline PAD between 0.91–0.99. Normal 1-1.4
CT in mmHg	15–30 mmHg*	15–40 mmHg*	15–50 mmHg

* Use modified CT with caution. Absolute systolic ankle pressure should be >60mmHg[2]

- Optimal wound management with provision of local treatment need to be supported with appropriate management of systemic disease, compression therapy and debridement. Remember that surgical debridement is contraindicated in some circomstences, for example if ischemia is present or pyoderma gangrenosum[5]
- Monitor at each dressing change and reassess regularly. Be sure that the dressing is compatible with the compression therapy
- If you need to cut the dressing, consider using non-bordered products
- The choice of dressings must be based on local protocols and clinical judgement

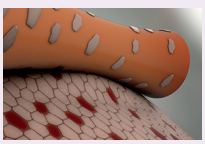
Proven choice for a better outcome

Safetac® is the original less-pain contact layer with silicone adhesion. We designed it to mould softly to skin without sticking to the moist wound[6] – so you can remove it easily without damaging the skin[7]. That means less pain for your patients[8].

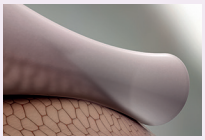
Safetac also protects new tissue and intact skin – so wounds remain undisturbed to support faster natural healing[9-12]. And it seals the wound margins to protect skin from damaging leaks and maceration[13,14]. This combination of less pain[8] and less skin damage[7,10-13,15] – to support faster healing[9-12] – can also reduce the cost of treatment[10,11,15].

You can trust Mölnlycke® dressings with Safetac, for better patient and economic outcomes.

Safetac® TECHNOLOGY



Skin stripping occurs with traditional adhesive[7]



No skin stripping occurs with Safetac technology[7]

Dressing information

Mepilex® Border Lite



- Light foam dressing with soft silicone wound contact layer
- For non to low-exuding wounds; designed to maintain a moist wound environment
- Thin, soft, and highly conformable
- Can easily be cut to size
- Minimises pain and damage at dressing change[8]

Mepilex® XT



- Foam dressing with soft silicone wound contact layer
- For low to moderately exuding wounds; designed to maintain a moist wound environment
- Soft and conformable foam dressing
- Can easily be cut to size
- Mepilex XT can handle both low and high viscosity fluid[16]
- Minimise skin damage and pain at dressing changes[17]

Mepilex® Border Flex



- All-in-one bordered foam dressing with flex cuts and soft silicone wound contact layer
- For moderately to highly exuding wounds; designed to maintain a moist wound environment
- The Flex Technology allows Mepilex® Border Flex to move in every direction, reducing skin stress, increasing comfort and keeping it in place.[18-20]
- The 5-layer dressing absorbs and trap exudate containing bacteria and keep the exudate away from the wound bed, even under compression therapy (*in vitro*)[21]
- Minimise skin damage and pain at dressing changes[8]

Mepilex® Ag



- Antimicrobial foam dressing with soft silicone wound contact layer.
- For low to moderately exuding wounds, designed to maintain a moist wound environment
- Soft and conformable foam dressing
- Can easily be cut to size
- Mepilex Ag kills wound-related pathogens within 30 minutes; and carries on doing so for up to 7 days (*in vitro* studies)[22]
- Minimise skin damage and pain at dressing changes[8]

Mepilex® Border Ag



- Antimicrobial all-in-one bordered foam dressing
- For moderately to highly exuding wounds; designed to maintain a moist wound environment
- Combines excellent exudate management properties with antimicrobial action[23,24]
- Minimise skin damage and pain at dressing changes[8]

Exufiber®



- Gelling fibre dressing with silver (Exufiber Ag+) and without (Exufiber)
- For moderately to highly exuding wounds
- Transforms into a gel that provide moist wound environment[25-29] and softly conforms to the wound bed[25,27,28]
- The Hydrolock® Technology absorbs and locks in exudate, blood and bacteria[25,26,30]

Exufiber® Ag+



- The high structural integrity enables one-piece dressing removal[25-29, 31-34]
- The Silver in Exufiber Ag+ kills a broad range of pathogens (*in vitro*) and reduce biofilm, the antimicrobial effect is kept for up to seven days (*in vivo*)[35-37]
- Can easily be cut and used in cavities

Mepilex® Transfer



- Exudate transfer dressings with silver (Mepilex Transfer Ag) and wothout (Mepilex Transfer)
- Effectively transfer exudate to a secondary layer
- Very thin and conformable foam for difficult-to-dress locations
- Can easily be cut to size
- Mepilex Transfer Ag inactivates a broad range of microorganisms (*in vitro* studies)[38]

Mepilex® Transfer Ag



- Mepilex Transfer Ag combines a rapid antimicrobial effect within 30 min and a sustained effect up to 14 days (*in vitro* studies)[38]
- Minimise skin damage and pain at dressing changes[8, 39]

Mextra® Superabsorbent



- Superabsorbent dressing with fluidrepellent backing
- For highly exuding wounds
- Superabsorbent particles for high absorption and retention[40]
- The superabsorbent particles in the pad have a protease modulating activity[41-43]
- Soft and conformable
- Fluid repellent backing layer protects against fluid strike-through

Granulox®



- Granulox is a hemoglobin-based spray for topical use on chronic wounds
- The hemoglobin provides the wound with the required oxygen by means of diffusion
- Twice as many chronic wounds healed at 8–16 weeks compared to standard of care[44-46]
- Granulox is easy to handle and to apply

Granudacyn®



- Wound irrigation solution and gel for acute and chronic wounds such as venous leg ulcers
- Effective preservation with HOCl/ NaOCl against gram+/- bacteria, viruses, fungi and spores[47]
- Reduce wound malodor[48]

Tubifast



- Tubular retention bandage
- Holds dressings securely, without constriction or compression
- A variety of lengths are available
- Available in a range of quick reference, colour-coded sizes to fit everything from small limbs to adult trunks

References: 1. Strohal.R., Gerber.V., Kröger.K., et al. Expert consensus on practical aspects of wound therapy with hemoglobin spray. Wound management 2016; 5: 276–284. **2.** Bjork, R, Ehmann S. S.T.R.I.D.E. Professional guide to compression garment selection for the lower extremity. Journal of Wound Care 2019: 28:(6 suppl 1):1–44.Consensus recommendations. Wounds International 2015. **3.** Franks, P., Barker, J., Collier, M. et al. Management of patients with venous leg ulcer: challenges and current best practice, J Wound Care, 25; 6, Suppl, 1–67, 2016. **4.** Harding, K., Dowsett, C., Fias, L. et al. Simplifying venous leg ulcer management. **5.** Teagle, A. and Hargest, R. Management of pyoderma gangrenosum. Journal of the Royal Society of Medicine 2014;107(6):228–236. **6.** White R. Evidence for atraumatic soft silicone wound dressing use. Wounds UK 2005;1(3):104-109. **7.** Waring, M., Biefeldt, S., Matzold, K.P., Butcher, M. An evaluation of the skin stripping of wound dressing adhesives. J Wound Care 2011;20:412–22. **8.** White, R. A multinational survey of the assessment of pain when removing dressings. Wounds UK 2008;4:14–22. **9.** David, F., Wutze, J-L., Breton, N., et al. A randomised, controlled, non-inferiority trial comparing the performance of a soft silicone-coated wound contact layer (Mepitel One) with a lipidocolloid wound contact layer (UrgoTul) in the treatment of acute wounds. Int Wound J 2017 doi:10.1111/iwj.12853. **10.** Gotschall, C.S., Morrison, M.I., Eichelberger, M.R. Prospective, randomized study of the effi cacy of Mepitel on children with partial-thickness scalds. J Burn Care Rehabil 1998;19:279-83. **11.** Silverstein, P., Heimbach, D., Meites, H., et al. An open, parallel, randomized, comparative, multicenter study to evaluate the cost effectiveness, performance, tolerance, and safety of a silver-containing soft silicone foam dressing (intervention) vs silver sulfadiazine cream. J Burn Care Res 2011;32:617-26. **12.** Gee Kee, E.L., Kimble, R.M., Cuttle, L., Khan, A., Stockton, K.A. Randomized controlled trial of three burns dressings for partial thickness burns in children. Burns 2015;41:946-55. **13.** Meaume, S., Van De Looverbosch, D., Heyman, H., Romanelli, M., Ciangherotti, A., Charpin, S. A study to compare a new self-adherent soft silicone dressing with a self-adherent polymer dressing in stage II pressure ulcers. Ostomy Wound Manage 2003; 49 (9): 44-51. **14.** Wiberg, A-B., Feili, F., Daun, E-K. Preventing maceration with a soft silicone dressing: *in vitro* evaluation. Poster presentation at the 3rd Congress of the World Union of Wound Healing Societies, Toronto, Canada, 2008. **15.** Bredow J, Hoffmann K, Hellmich M, Eysel P, Zarghooni K. Randomized clinical trial to evaluate performance of flexible self-adherent absorbent dressing coated with silicone layer after hip, knee or spinal surgery in comparison to standard wound dressing. Poster presentation at the 5th Congress of the World Union of Wound Healing Societies, Florence, Italy, 2016. **16.** Mölnlycke Health Care data on file, report 20160105-002. **17.** Lantin, A., Diegel, C., Scheske, J., Schmitt, C., Brönner, A., Jodl, H. Mepilex XT in practice: results of a study in German specialist wound care centres. Wounds International 2015; 6(4):18-22. **18.** ProDerm study report 16.0180-23. Assessment of Wearing Properties of Wound Dressings on the Knees. Data on file. **19.** ProDerm study report 16.0180-23. Assessment of Wearing Properties of Wound Dressings on the Elbows. Data on file. **20.** ALTEN Finite Element Modelling simulation. Laboratory report no .PD-530246. **21.** Mölnlycke Health Care. Mepilex® Border Flex-Bacteria encapsulation. Report no. PD-537072. Data on file. **22.** Chadwick, P., Taherinejad, F., Hamberg, K., Waring, M. Clinical and scientific data on a silver-containing soft-silicone foam dressing: an overview. J Wound Care 2009;18:483-91. **23.** External lab report: NAMSA 09C 29253 01/09C 29253 02. **24.** Kles C.L., Murrah, C.P., Smith, K., et al. Achieving and sustaining zero. Preventing surgical site infections after isolated coronary artery bypass with saphenous vein harvest through implementation of a staff-driven quality improvement process. Dimensions Crit Care Nurs 2015;34:265-72. **25.** Smet, S., Beele, H., Saine, L., Suys, E., Henrickx, B. Open, noncomparative, multi-centre post market clinical follow-up investigation to evaluate performance and safety on pressure ulcers when using a gelling fibre dressing as intend-ed. Poster Presentation at European Pressure Ulcer Advisory Panel Confer-ence, 2015, Ghent, Belgium. **26.** Chadwick P, McCardle J. Open, non-comparative, multicentre post clinical study of the performance and safety of a gelling fibre wound dressing on diabetic foot ulcers. J Wound Care 2016;25:290-300. **27.** Davies P, McCarty S. An in-use product evaluation of a gelling fibre dressing in wound management. E-poster presentation at Wounds UK Conference, 2017, Harrogate, United Kingdom. **28.** Lev-Tov et al. An interim analysis of clinical investigation to evaluate exudate management and comfort of use of an antimicrobial gelling fi ber dressing® in medium to highly exudative wounds. Poster presented at the Symposium of Advanced Wound Care, Fall meeting 2018, Las Vegas, NV, USA. **29.** Mölnlycke Health Care Laboratory Report PD-520425 (unpublished). Retention **30.** Mölnlycke Health Care. Exufiber. Gesellschaft für Versorgungskonzepte in der Wundbehandlung (GVW) mbH, Stuttgart, Germany. Data on file (unpublished report, 2017. **31.** Mölnlycke Health Care Laboratory Report PD-521248 (unpublished). Tensile strength. **32.** Mölnlycke Health Care Laboratory Report PD-521232 (unpublished). Absorption under compression. **33.** Mölnlycke Health Care Laboratory Report PD-522900 (unpublished). Absorption of thick exudate **34.** Mölnlycke Health Care Laboratory Report PD-521245 (unpublished). Absorption of blood. **35.** Hamberg K et al. Antimicrobial effect of a new silver-containing gelling fi bre dressing against common wound pathogens. Poster presented at the Symposium on Advanced Wound Care Spring meeting/ Wound Healing Society (WHS) Annual Meeting 2017, Apr 05–09, 2017, San Diego, CA, USA. **36.** Gil J et al. 2017. Evaluation of a Gelling Fiber Dressing with Silver to Eliminate MRSA Biofi lm Infections and Enhance the Healing. Poster presented at the Symposium on Advanced Wound Care Spring meeting/ Wound Healing Society (WHS) Annual Meeting 2017, Apr 05–09, 2017, San Diego, CA, USA. **37.** Valdes et al. 2017. Evaluation of a Gelling Fiber Dressing with Silver to Eliminate P. a. Biofi lm Infections and Enhance the Healing. Poster presented at the Symposium on Advanced Wound Care Spring meeting/Wound Healing Society (WHS) Annual Meeting 2017, Apr 05–09, 2017, San Diego, CA, USA. **38.** External lab report; NAMSA 11C_51788_01. **39.** Grocott Patricia. Clinical investigation Mepilex® Transfer, Clinical Investigation of a silicone dressing in product development phase in the palliative management of patients with pressure sores and malignant wounds, study id MIN101 UK, London UK,2000. **40.** Tickle, J., Fletcher, J. Mextra Superabsorbent made easy. Wounds UK 2012;8: 1-4. **41.** Eming, S., et al. [2008] The inhibition of matrix metalloproteinase activity in chronic wounds by a polyacrylate superabsorber Biomaterials; 29(19):2932-40. **42.** Wiegand, C., et al. Polyacrylate superabsorbers bind inflammatory protease *in vitro*, Poster at Wounds UK, 2008, Harrogate 10-12 Nov 2008. **43.** Wiegand C., et al. (2013) A superabsorbent polymer-containing wound dressing efficiently sequesters MMPs and inhibits collagenase activity *in vitro*. Journal of Materials Science Materials in Medicine. 2013;24(10):2473-2478. **44.** Hunt, S., Elg, F. Clinical effectiveness of hemoglobin spray (Granulox®) as adjunctive therapy in the treatment of chronic diabetic foot ulcers. Diabetic Foot & Ankle 2016; 7: 33101. **45.** Elg, F., Hunt, S. Hemoglobin spray as adjunct therapy in complex wounds: Meta-analysis versus standard care alone in pooled data by wound type across three retrospective cohort controlled evaluations. SAGE Open Med. 2018 Jun; 6:2050312118784313. **46.** Hunt, S., Elg, F. The clinical effectiveness of haemoglobin spray as adjunctive therapy in the treatment of chronic wounds. J Wound Care. 2017 Sep; 26(9):558-568. **47.** *In vitro* suspension test (EN13727, EN 13624, EN 13704, EN 14476 – phase 2) with Granudacyn® wound irrigation solution. **48.** Consensus on Wound Antisepsis: Update 2018, Skin Pharmacol Physiol 2018;31:28–58, DOI: 10.1159/000481545.

Please note: This is a Guide only and cannot replace clinical judgement. Each clinician is responsible for comprehensive evaluation and a plan of care appropriate for individual patient needs.

Mölnlycke Health Care AB, Box 13080, Gamlestadsvägen 3C, SE-402 52 Göteborg, Sweden. Phone +46 31 722 30 00.

The Mölnlycke, Mepilex, Mextra, Tubifast, Mepitel, TwoWay Stretch, Granulox, Granudacyn and Safetac trademarks, names and logotypes are registered globally to one or more of the Mölnlycke Health Care group of companies.
© 2019 Mölnlycke Health Care AB. All rights reserved. HQIM000673

Mölnlycke®