

**LIVE ON
FACEBOOK**

WOUND HYGIENE: FOUR SIMPLE STEPS TO PROGRESS HARD-TO-HEAL WOUNDS

05
AUG **7:30PM**



ALISON PARNHAM



MARIA POOLE



Wound hygiene: four simple steps to progress hard-to-heal wounds

Maria Poole, Alison Parnham

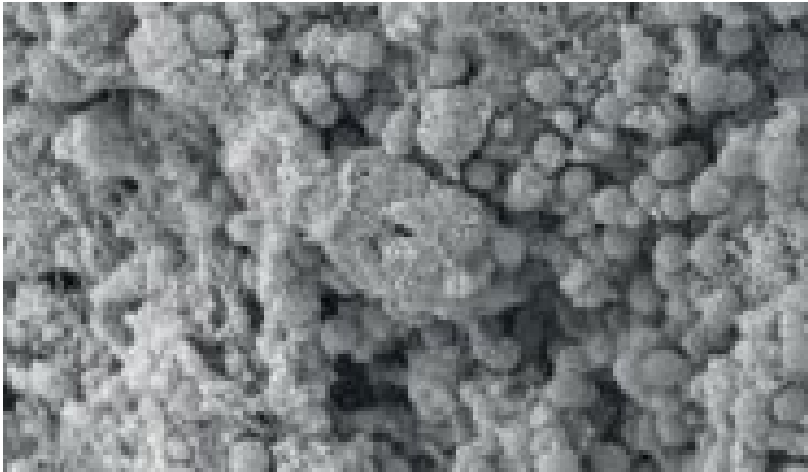
Key learning outcomes

- Understand the link between biofilm and hard-to-heal wounds
- Understand the need for early intervention — are we waiting too long?
- Understand what wound hygiene is and how an early antibiofilm-based approach can be applied in clinical practice

A decorative graphic consisting of a series of parallel diagonal stripes in a dark grey color, spanning the width of the slide and framing the central text.

Biofilm and its link to hard-to-heal wounds

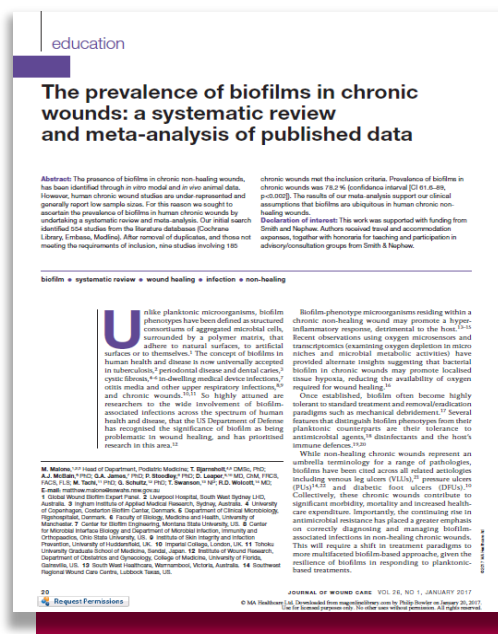
What is biofilm?



Biofilm image obtained with high resolution scanning microscope³

- Microbial cells attached to a living or non-living surface
- Embedded within a self-produced matrix of extra-cellular polymeric substances (EPS)
- Biofilm provides tolerance to antimicrobial agents
- Causes persistent inflammation and infection^{1,2}

Biofilm in wounds — prevalence⁴



Malone M, Bjarnsholt T, McBain AJ, et al (2017) The prevalence of biofilms in chronic wounds: a systematic review and meta-analysis of published data. *Wound Care* 26(1): 20–5

- Meta-analysis on prevalence of biofilm in chronic wounds was conducted by a panel of international expert clinicians and scientists⁴
- Nine published studies involving 185 chronic wounds were identified
- Biofilm was reported in 78.2% of chronic wounds
 - Confirmed by microscopic techniques
- *'The results of our meta-analysis support our clinical assumptions that **biofilms are ubiquitous in human chronic non-healing wounds**'*

So...

- If it's widely accepted that biofilm is present in the majority of hard-to-heal wounds and is a barrier to healing ⁵⁻⁷
- That biofilm is complex, difficult to treat, reforms rapidly and is tolerant to topical antiseptics and antibiotics⁸⁻¹⁰
- Why are we waiting to intervene earlier with a biofilm-based wound care approach?

Expert opinion article¹¹



Defying hard-to-heal wounds with an early antibiofilm intervention strategy: 'wound hygiene'

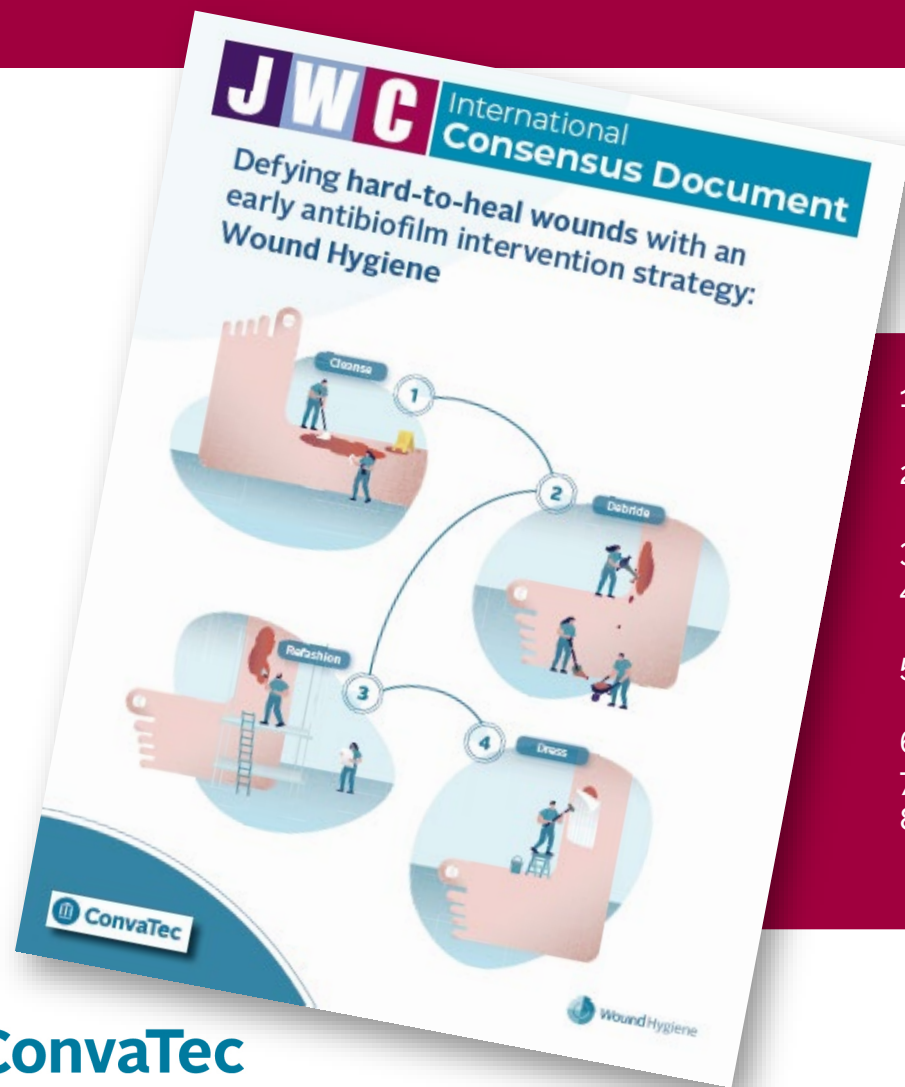
Abstract: Biofilm has been implicated as a barrier to wound healing and it is widely accepted that the majority of wounds not following a normal healing trajectory contain biofilm. Therefore, strategies that inform and engage clinicians to reduce biofilm and optimise the wound tissue environment to enable wound progression are of interest to wound care providers. In March 2019, an advisory board was convened where experts considered the barriers and opportunities to drive a broader adoption of a biofilm-based approach to wound care. Poor clarity and articulation of wound terminology were identified as likely barriers to clinical adoption of rigorous and proactive microbial decontamination that is supportive

of wound healing advancement. A transition to an intuitive term such as 'wound hygiene' was proposed to communicate a comprehensive wound decontamination plan with an associated message of expected habitual routine. 'Wound hygiene', is a relatable concept that supports meticulous wound practice that addresses barriers to wound healing, such as biofilm, while aligning with antimicrobial stewardship programmes.

Declaration of interest: This article summarises discussions of experts at an Advisory Board Meeting held in March 2019 in London, funded by ConvaTec. Editorial assistance for the development of this article was provided by Lorraine Ralph at ConvaTec.

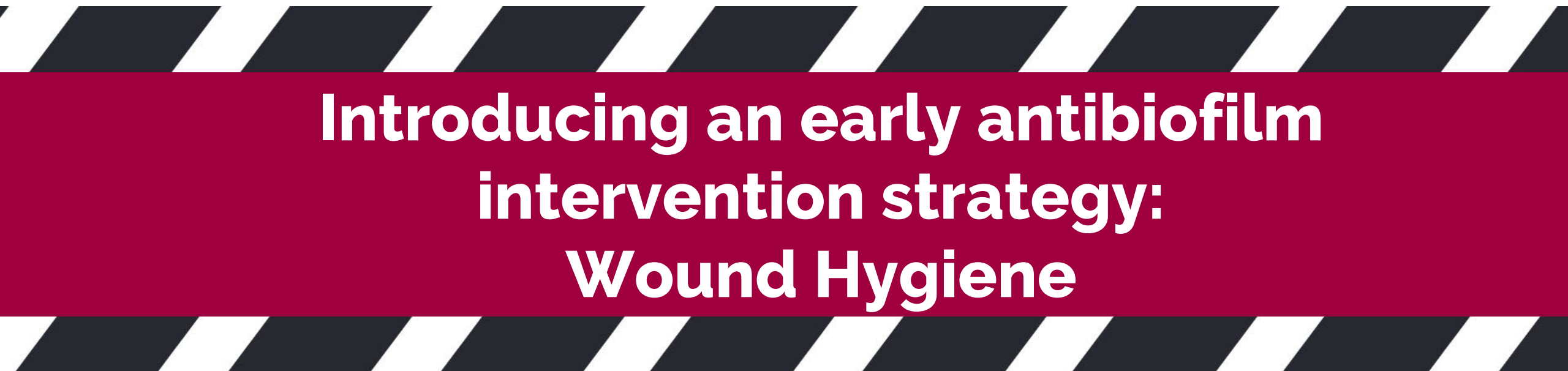
antimicrobial stewardship; • biofilm • chronic wound • hard-to-heal wound • wound hygiene

Publication of the Consensus Document



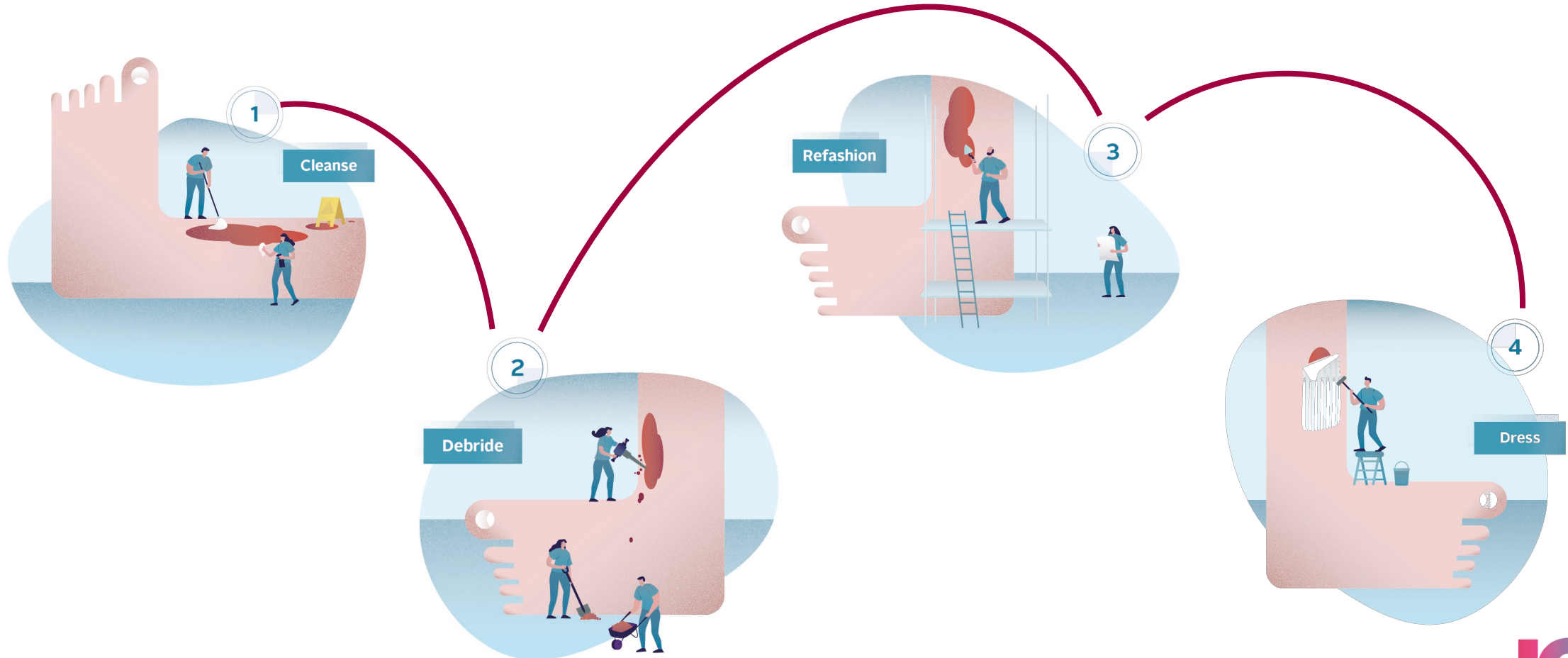
Defying hard-to-heal wounds with an early antibiofilm intervention strategy: Wound Hygiene¹²

1. Christine Murphy, President of Nurses Specialized in Wound, Ostomy and Continence Canada (NSWOCC), The Ottawa Hospital Limb Preservation centre, Ottawa, Canada
2. Dot Weir, RN, CWON, CWS, Saratoga Hospital Center for Wound Healing and Hyperbaric Medicine, Saratoga Springs, New York, US
3. Leanne Atkin, Vascular Nurse Consultant, Mid Yorkshire Hospitals NHS Trust, UK
4. Masahiro Tachi, Professor, Department of Plastic and Reconstructive Surgery, Tokyo, Japan
5. Melina Vega de Ceniga, Consultant Vascular and Endovascular Surgeon, Galdakao-Usansolo Hospital, Bizkaia, Spain
6. Randall Wolcott, MD, Southwest Regional Wound Care Center, Lubbock, Texas, US
7. Terry Swanson, NP Wound Management, Warrnambool, Victoria, Australia
8. Yih Kai Tan, Consultant Vascular and Endovascular Surgeon, Farrer Park Hospital, Singapore



Introducing an early antibiofilm intervention strategy: Wound Hygiene

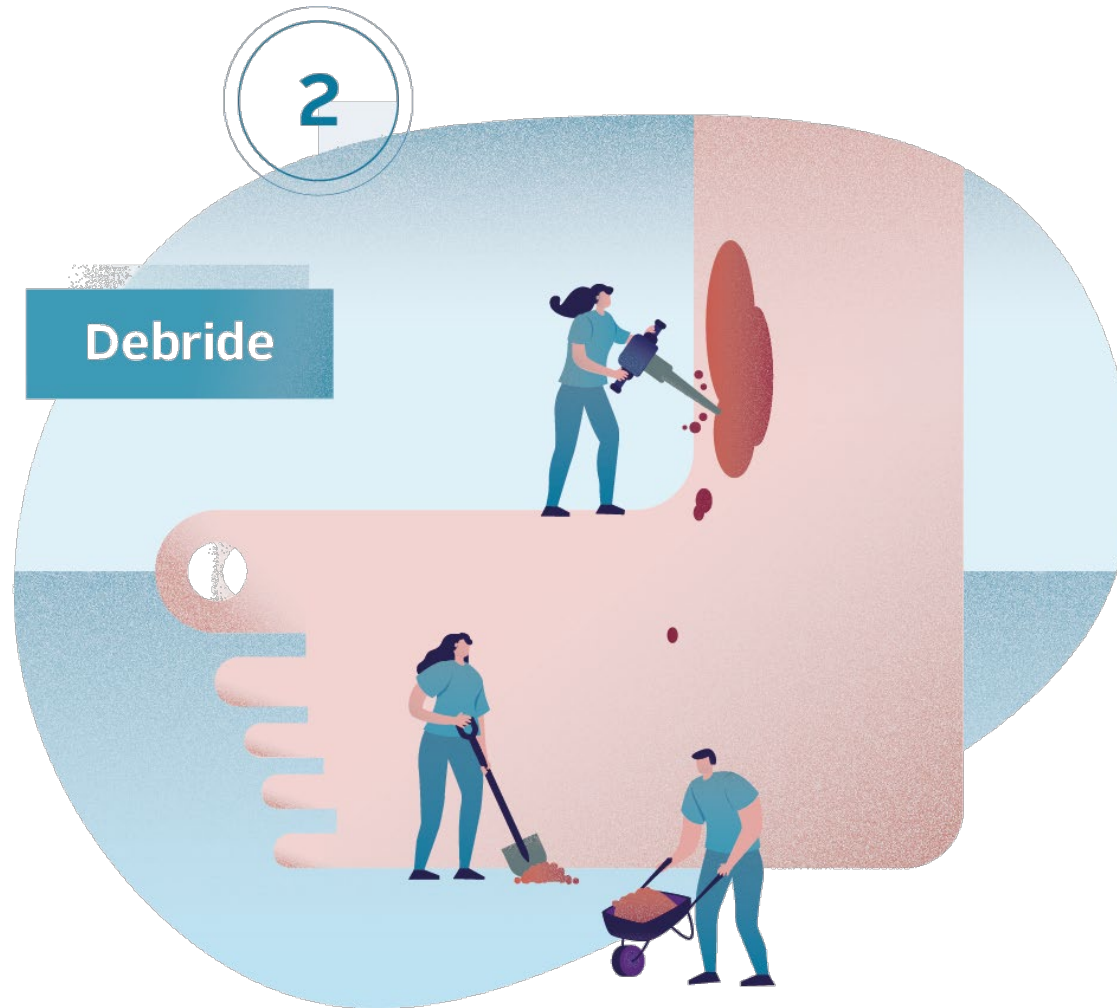
Wound Hygiene — simple 4-step regime



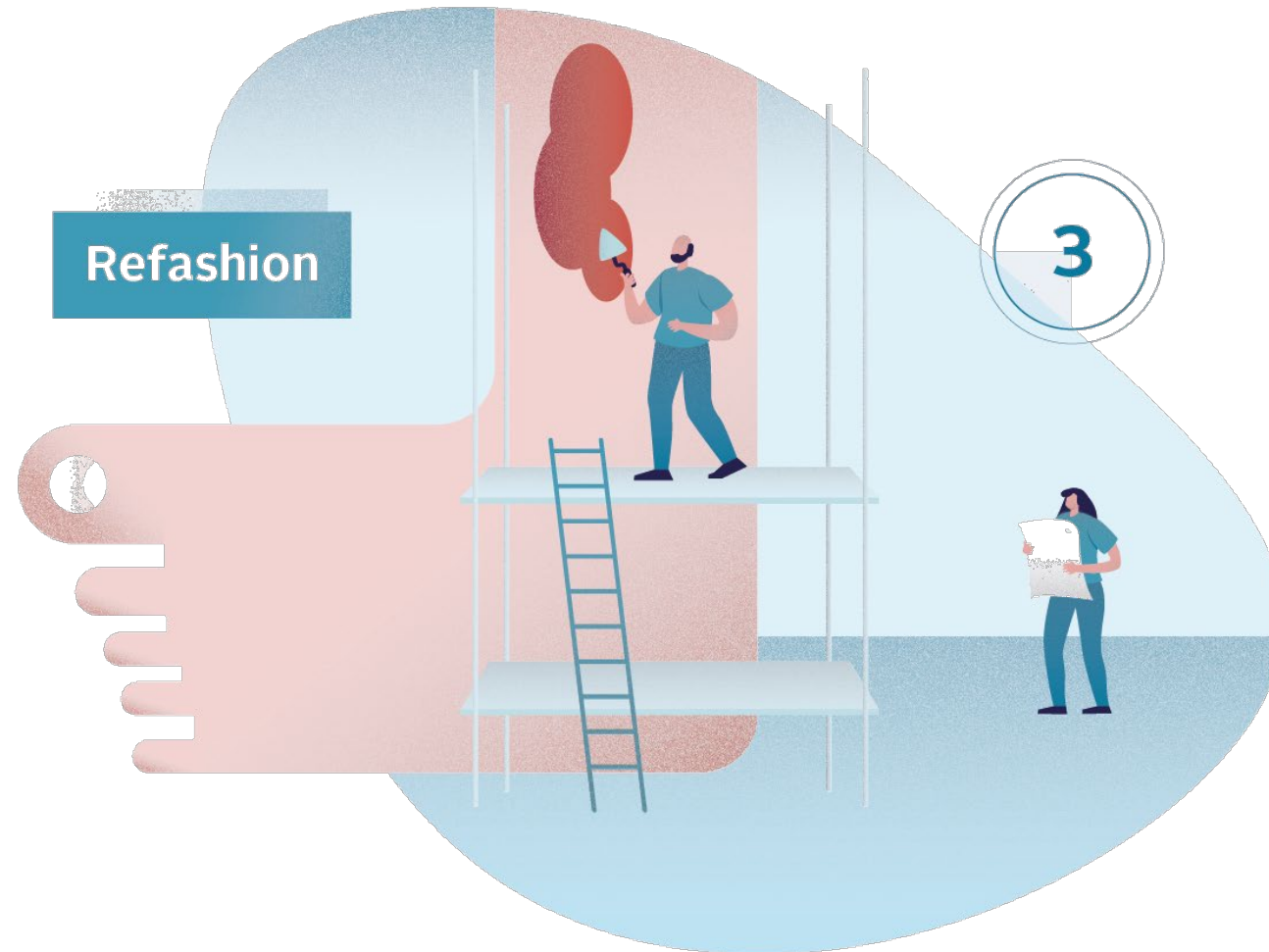
Wound Hygiene — simple 4-step regime



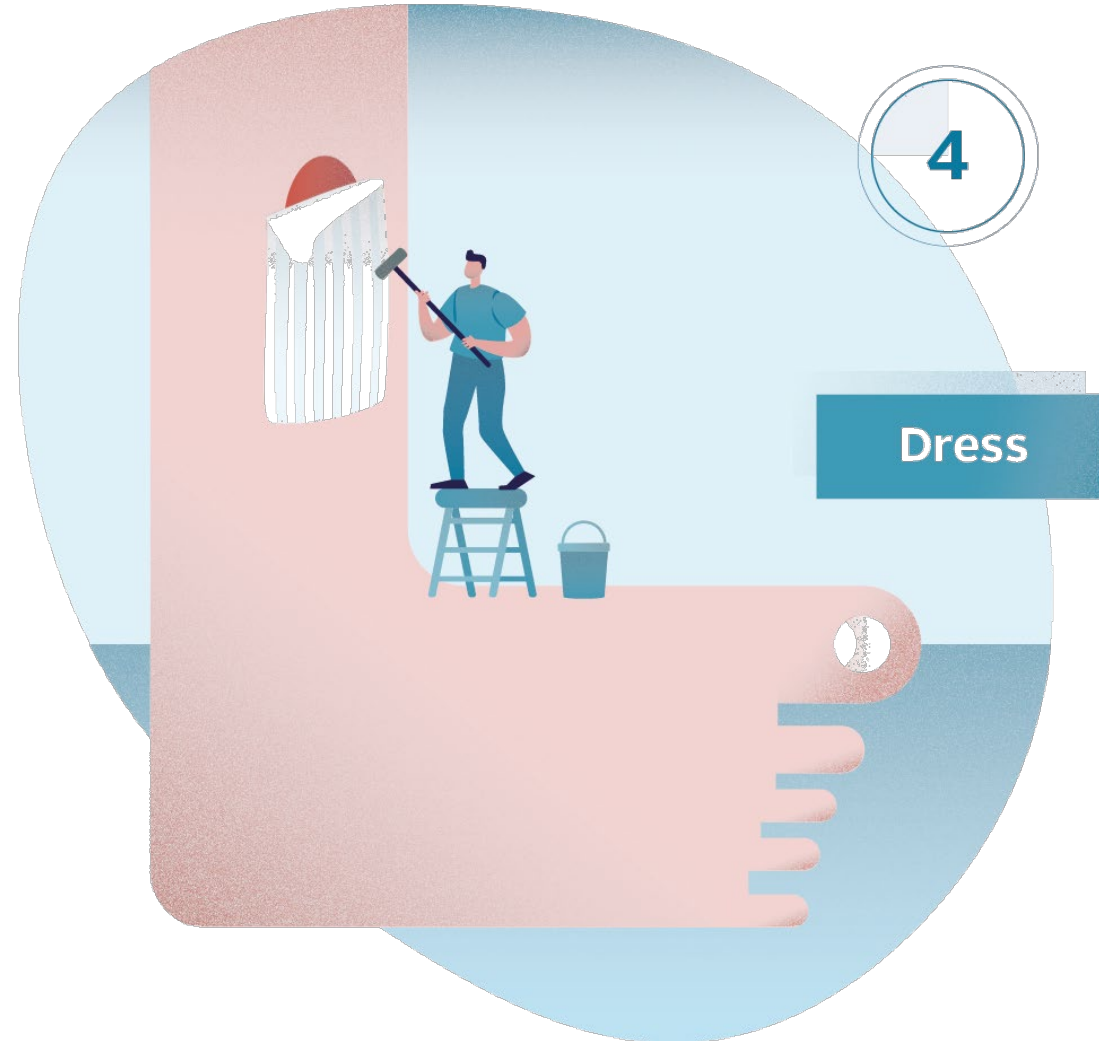
Wound Hygiene — simple 4-step regime



Wound Hygiene — simple 4-step regime



Wound Hygiene — simple 4-step regime



Clinical experiences of a biofilm-based wound care approach

Alison Parnham, RN, MSc, BSc (Hons) RN

Clinical Nurse Specialist Tissue Viability
Nottingham CityCare

&

Teaching Associate Tissue Viability
University of Nottingham School of Health Sciences

Biofilm-based wound care approach

Timely wound assessment



- Facilitates early identification of the hard-to-heal wound
- Identifies factors likely to delay healing
- Prompts diagnosis of wound infection
- Expedites biofilm detection
- Transitions to biofilm-based wound care

Biofilm-based wound care: the evidence



- Mechanical debridement is a prerequisite to effective biofilm-based wound care⁹
- Debridement influences the micro-environment of the wound by physical degradation of the biofilm matrix⁹
- However, debridement alone does not provide adequate reduction in biofilm¹³, with biofilm proved to reform within 24 hours⁸
- Topical antimicrobials alone do not eradicate biofilm, with increased tolerance as biofilm matures⁸
- Emerging antibiotic resistance calls for non-antibiotic strategies¹⁴

Biofilm-based wound care: the evidence

Mechanical debridement disrupts or removes biofilm while topical antimicrobials continue to destroy biofilm and prevent reformation

(Bianchi et al, 2016)



Synergy



Protocol of care

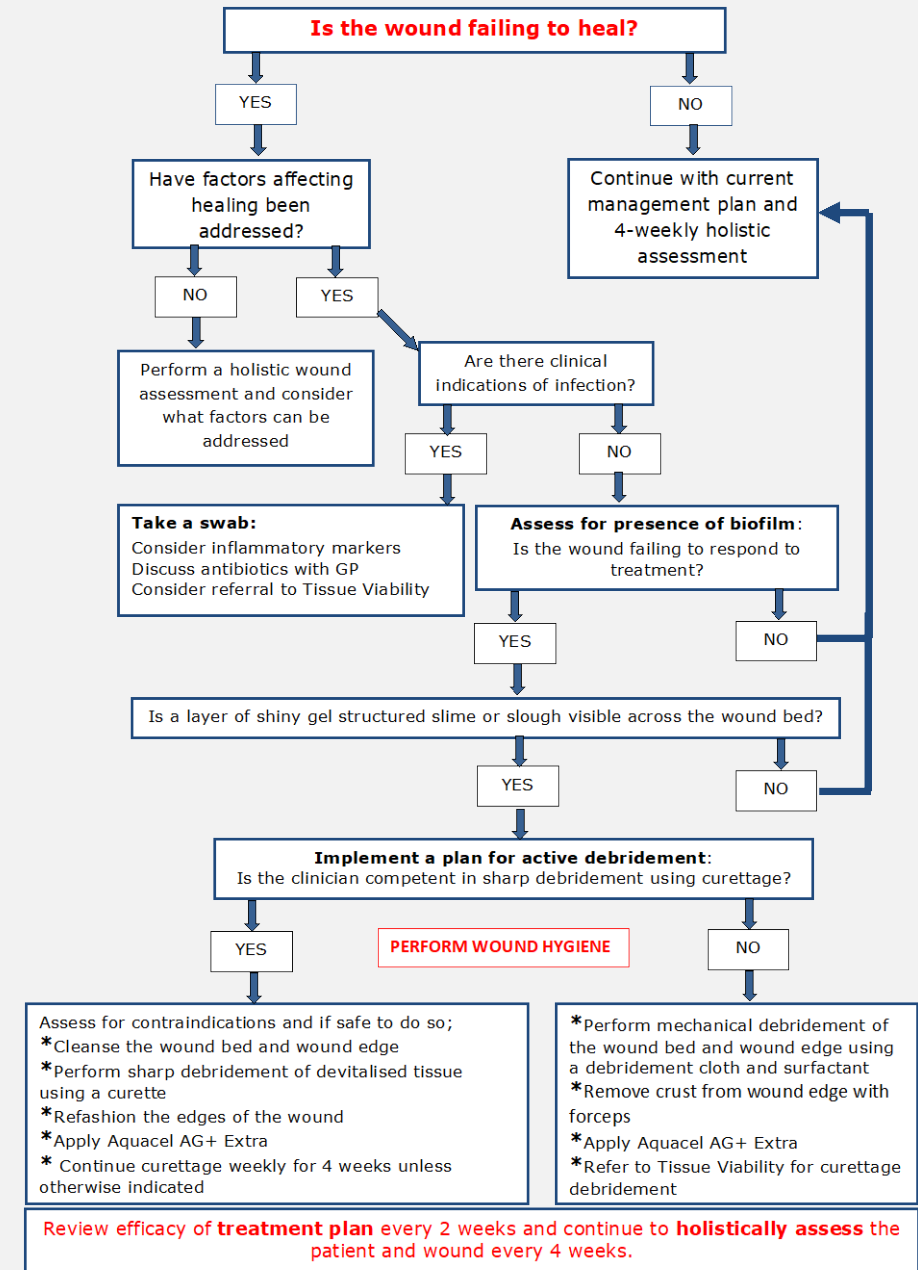
Cleanse

Debride

Refashion

Dress

Clinical Decision Algorithm for Biofilm-Based Wound Care



Clinical example #1

Patient with rheumatoid arthritis, reduced ABPI, in modified compression for three years. Curettage and AQUACEL[®] Ag+ Extra[™] dressing.



**Healed in
3 months.**

Clinical example #2

Patient with diabetes, obesity, lymphoedema. Maintenance in compression hosiery until trauma injury with haematoma sustained. 1.12.17, wound present for one year with no evidence of healing. Curettage 2 weekly dressed with AQUACEL® Ag+ Extra™ dressing



Clinical example #3

66-year-old gentleman diagnosed with rheumatoid arthritis at the age of 26. Right fixed ankle joint and ulceration to right leg since 2011 and right toe amputation in 2017. Static non-healing circumferential gaiter ulceration. Curettage two weekly, dressed with AQUACEL[®] Ag+ Extra[™] dressing



The impact of biofilm

PREVALENCE

Biofilm is present in at least 78% of hard-to-heal wounds⁵

DELAYS WOUND HEALING

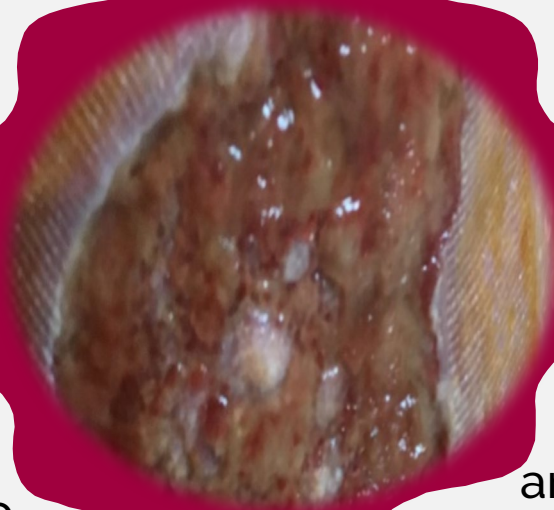
Biofilm creates a sustained inflammatory response, impairing granulation tissue formation and epithelialisation^{1, 2}

TOLERANCE

Biofilm is tolerant to antiseptics and antibiotics¹

OVERT INFECTION

Hard-to-heal wounds are associated with local infections and require new strategies within a biofilm-based wound care approach⁵



The future of chronic wound care: why are we waiting?

ANTIMICROBIAL STEWARDSHIP

- Prevents antibiotic overuse
- Reduces microbial resistance
- Appropriate use of Antimicrobial dressings

NATIONAL GUIDELINES

- Protocols of care
- Recommending prompt action
- Cleanse, debride, refashion and dress

IMPROVED OUTCOMES

- Reduced infection
- Fewer amputations
- Faster healing
- Improved QoL

HEALTH ECONOMICS

- Cost savings
- Reduce NHS burden
- Appropriate use of resources

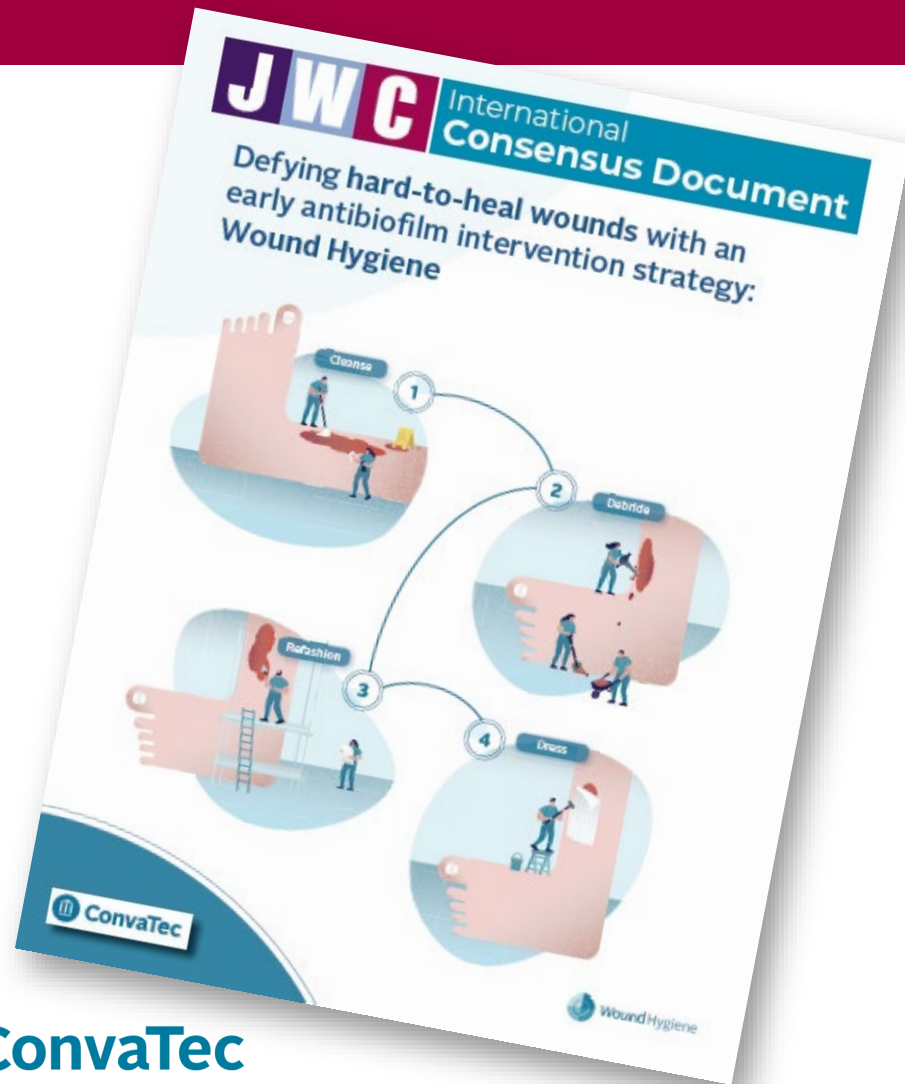


Summary

- Biofilm is a major cause of delayed wound healing and is present in the majority of hard-to-heal wounds¹¹
- Wound Hygiene recognises and addresses that biofilm is the root of the problem with wounds becoming and remaining hard to heal
- Don't wait to intervene with biofilm-based wound care. Earlier intervention can improve outcomes for hard-to-heal wounds¹¹



How to access



- Download the Consensus at:
www.woundhygiene.com
- Also available at:
www.magonlinelibrary.com/page/jowc/resources
- Supplement in March edition of
Journal of Wound Care

References

- 1 Gurjala AN, Geringer M, Seth AK, et al (2011) Development of a novel, highly quantitative *in vivo* model for the study of biofilm-impaired cutaneous wound healing. *Wound Rep Reg* 19: 400–10
- 2 Hall-Stoodley L, Stoodley P, Kathju S, et al (2012) Towards diagnostic guidelines for biofilm-associated infections. *FEMS Immunol Med Microbiol* 65(2): 127–45
- 3 Walker M, Bowler PG, Cochrane CA (2007) *In vitro* studies to show sequestration of matrix metalloproteinases by silver-containing wound care products. *Ostomy/Wound Management* 53(9): 18-25
- 4 Malone M, Bjarnsholt T, McBain AJ, et al (2017) The prevalence of biofilms in chronic wounds: a systematic review and meta-analysis of published data. *J Wound Care* 26(1): 20–5
- 5 Malone M, Bjarnsholt T, McBain AJ, et al (2017) The prevalence of biofilms in chronic wounds: a systematic review and meta-analysis of published data. *J Wound Care* 26(1): 20–5
- 6 Schultz G, Bjarnsholt T, James GA, et al (2017) Consensus guidelines for the identification and treatment of biofilms in chronic nonhealing wounds. *Wound Repair Regen* 25(5): 744–57
- 7 Hurlow J, Blanz E, Gaddy JA (2016) Clinical investigation of biofilm in non-healing wounds by high resolution microscopy techniques. *J Wound Care* 25(Sup9): S11–S22

References

- 9 Wolcott RD, Kennedy JP, Dowd SE (2009) Regular debridement is the main tool for maintaining a healthy wound bed in most chronic. *J Wound Care* 18: 54–6
- 10 Hurlow J, Couch K, Laforet K, Bolton L, Metcalf D, Bowler P (2014) Clinical Biofilms: A Challenging Frontier in Wound Care. *Adv Wound Care* 4(5): 295–301
- 11 Murphy C, Atkin L, Dissemond J, et al (2019) Defying hard-to-heal wounds with an early antibiofilm intervention strategy: 'wound hygiene'. *J Wound Care* 28(12): 818–22
- 12 Murphy C, Atkin L, Swanson T, et al (2020) International consensus document. Defying hard-to-heal wounds with an early antibiofilm intervention strategy: wound hygiene. *J Wound Care* 29(Suppl 3b): S1–28
13. Schwartz J, Goss S, Facchin F, Avdagic E, Lantis H (2014) Surgical debridement alone does not adequately reduce planktonic bioburden in chronic lower extremity wounds. *J Wound Care APWH Supplement* 23(9): S4–S13
14. Cooper R, Kirketerp-Moller K (2018) Non-antibiotic antimicrobial interventions and antimicrobial stewardship in wound care. *J Wound Care* 27(6): 355–77

TO ACCESS YOUR CERTIFICATE VISIT:



www.jcn-live.co.uk/certificate