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**ANTIMICROBIAL STEWARDSHIP
IN WOUND CARE: SHARING BEST
PRACTICE**

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Antimicrobial stewardship in wound care — sharing best practice

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Learning outcomes

- To understand the importance of antimicrobial stewardship (AMS) in wound management
- To explore strategies and solutions for implementing best practice

Antimicrobial resistance — current status

- **Antimicrobial resistance (AMR) is increasing and most worrying is the resistance of first-line antibiotics to common infections such as:**
 - Gonorrhoea
 - Tuberculosis
- AMR has been detected in common wound pathogens, e.g. methicillin-resistant *Staphylococcus aureus* (MRSA)
- The World Health Organization (WHO) has listed AMR as one of the ten greatest global threats

[Ten threats to global health in 2019 \(who.int\)](https://www.who.int)

Antimicrobial stewardship — what is it?

- A solution for reducing and preventing further AMR
 - Multi-modal approach
 - Promoting judicious use of antimicrobials to preserve effectiveness
 - Systemic change and increased public awareness
- In wound care
 - Early identification of infection and infection risk is key
 - Appropriate use of antimicrobials (systemic and topical)
- Everything is underpinned by education
 - Effective infection control methods
 - Effective use of antimicrobials — what, when, where, how and for how long

Governing antimicrobial stewardship (AMS)

Centre for Disease Control and Prevention promote seven elements which are necessary for improving antimicrobial stewardship:

- Leadership
- Accountability
- Drug expertise
- Action
- Tracking
- Reporting
- Education



www.beckershospitalreview.com/quality/7-core-elements-of-antimicrobial-stewardship-programs.html

Responsibility for AMS in wound care

- National and International
 - WHO and National Institute for Health and Care Excellence (NICE)
- Public responsibility
 - Public health guidance
- Clinician
 - Relevant clinician (nurse, podiatrist, support staff, paramedic)
- The patient/carer
- Local and national policies

Multi-modal approach

AMS practice needs a multi-modal approach:

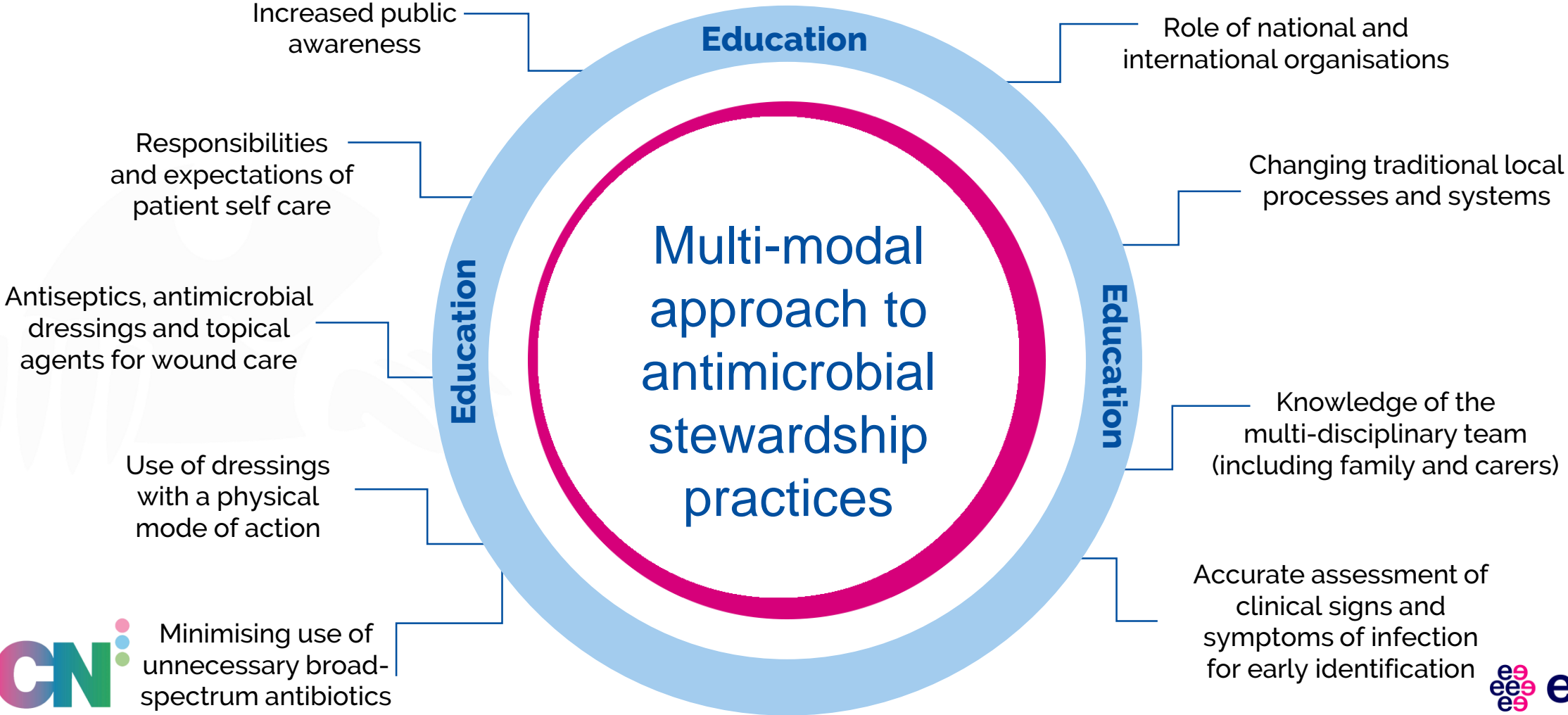
- Increased public awareness
- Involving local, national and international organisations
- Changing practice
- Education
- Responsibility for change

Multi-modal approach

In wound care:

- Accurate assessment of the wound — tool required, consistent across all care pathways
- Reducing antibiotic and antiseptic use to only when necessary
- Use dressings with a physical mode of action
 - debridement, cleansing

Multi-modal approach to AMS practices



Role of education in AMS

Education for all is needed to raise awareness and support behavioural change in tackling antimicrobial resistance.

There is a responsibility to educate:

- Patients
- Families
- Carers
- Healthcare professionals

Educating patients, family and carers

There is a need to:

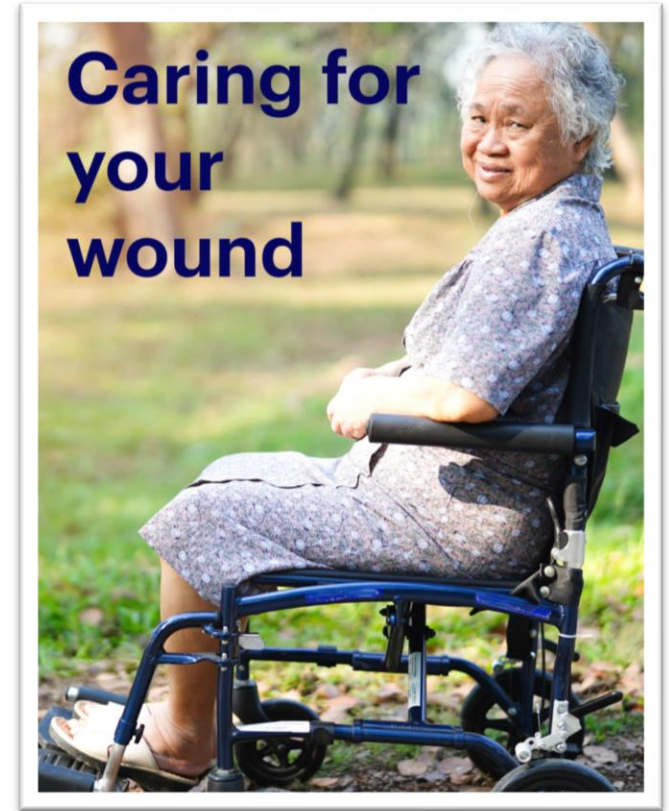
- Explain antimicrobial resistance
- Address why it is a concern for everyone
- Discuss strategies to reduce the risk of wound infection, including
 - Hand hygiene
 - Maintaining a clean environment



Educating patients, family and carers *cont.*

There is a need to:

- Provide advice on signs and symptoms of wound infection
- Explain when to seek urgent clinical attention
- Highlight the need to follow treatment plans correctly



Education for the current workforce

Education underpins the delivery of quality

Healthcare professionals should consistently be educated to a high standard to enable them to deliver safe and effective care (Nursing and Midwifery Council [NMC], 2020)

Education on AMS is a vital component to the delivery of best practice and should focus on

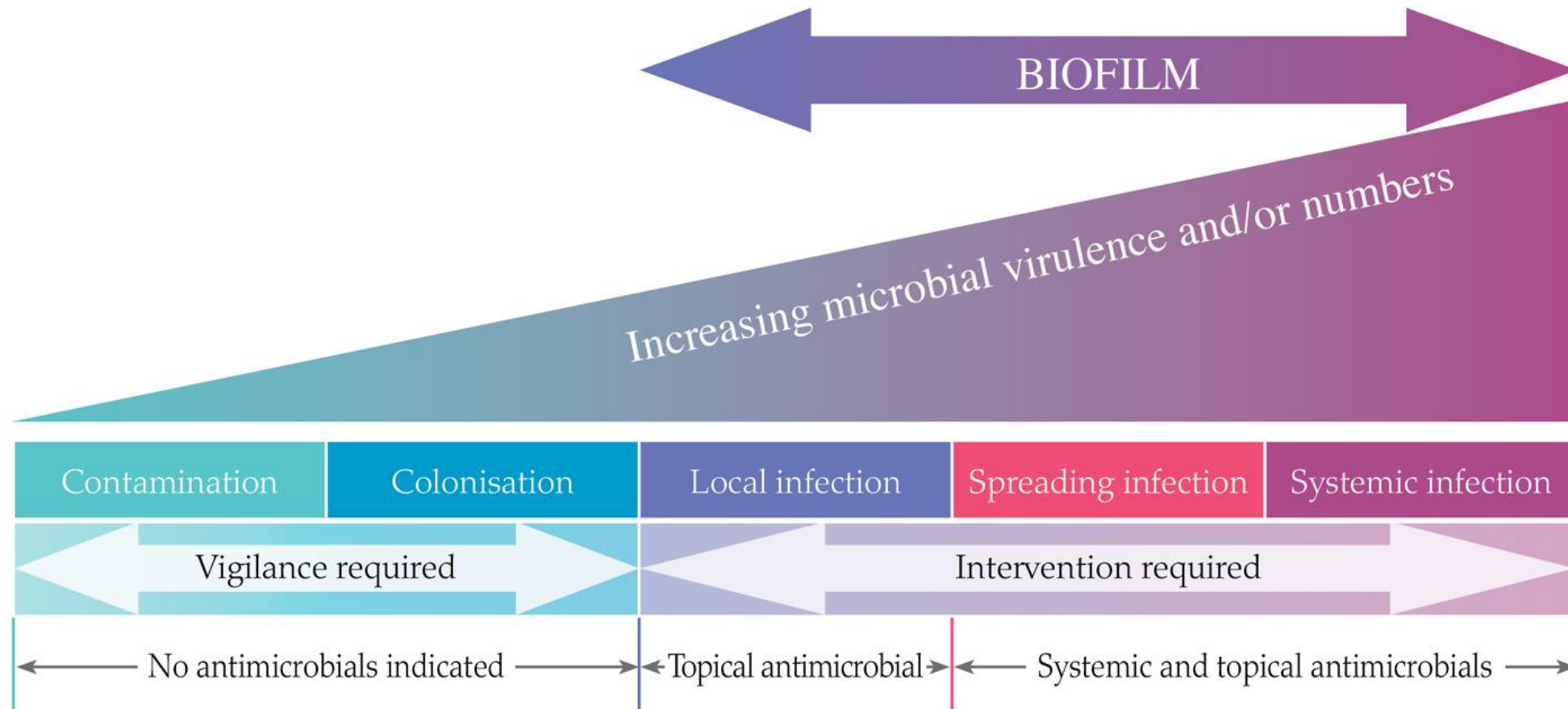
- Infection prevention — back to basics approach
- Understanding the infection continuum
- Antimicrobial treatment selection (Wounds UK, 2020)

Infection prevention

- Preventing infections from occurring in the first place is one of the best ways to reduce the need to prescribe antibiotics and prevent AMR
- Every infection prevented reduces the need for and use of antimicrobials which, in turn, lessens the potential for development of resistance

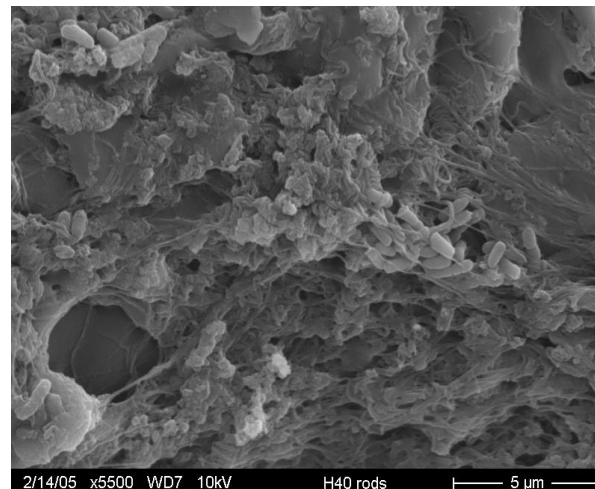
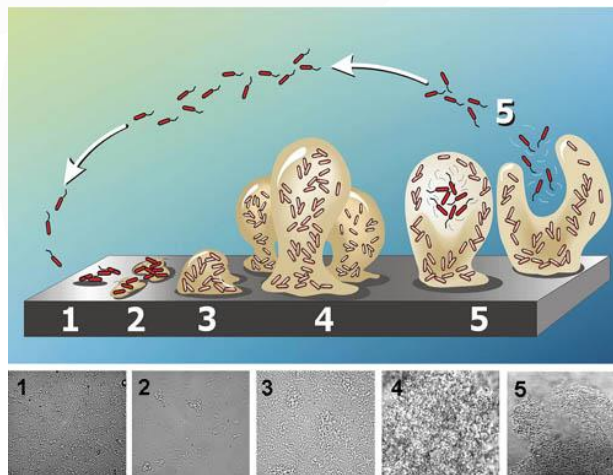
(Public Health England, PHE, 2017)

Understanding the wound infection continuum



Definition of a Biofilm

Biofilms are surface-attached communities of microorganisms, encased in an extracellular matrix of carbohydrates, proteins and/or DNA, that assume phenotypes distinct from those of **planktonic** (free floating) cells. **Sessile cells** (attached)



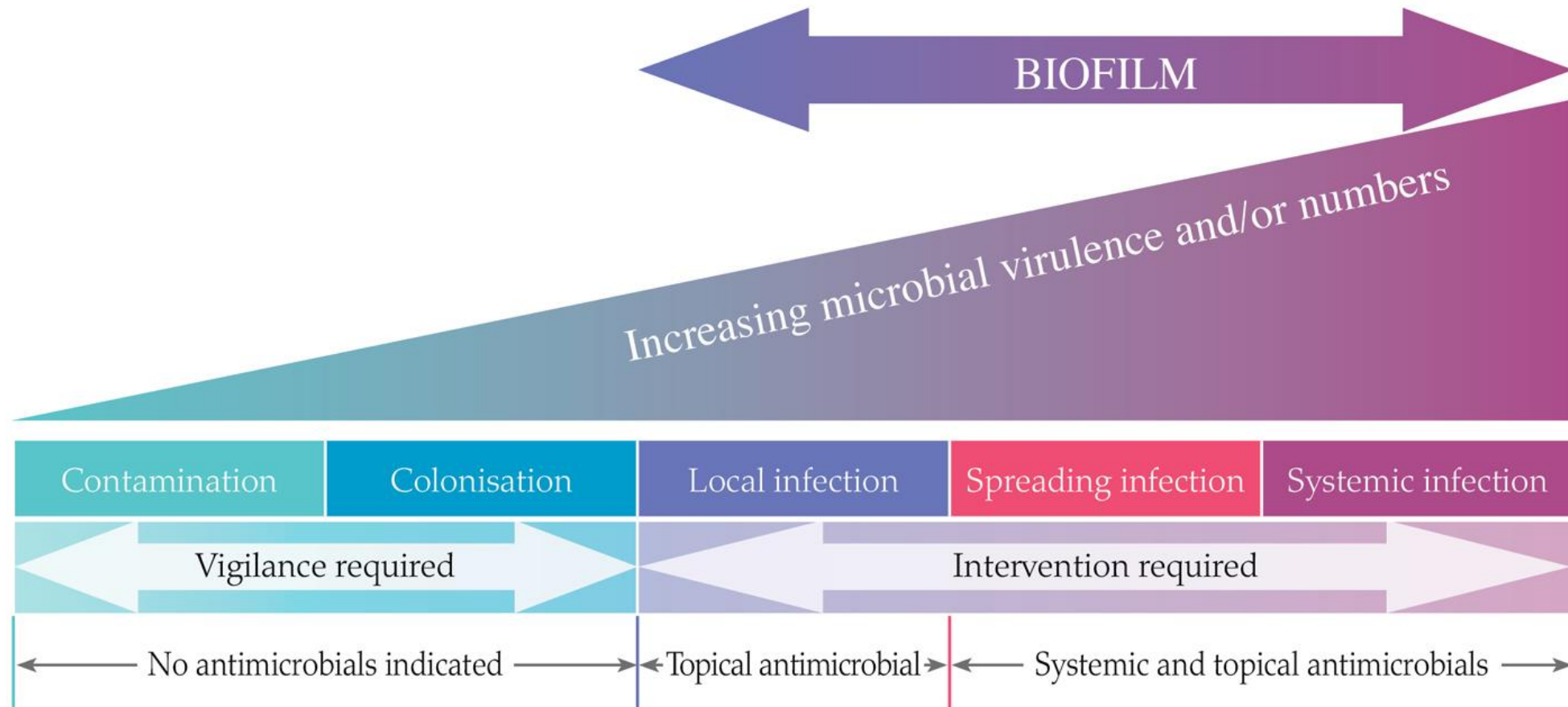
James et al, 2008

Antimicrobial treatment selection

- All wound care personnel should be aware of local policies which will take into account local antibiotic sensitivity problems
- There should be regular review of antibiotics and topical antiseptics used
- Frequent holistic re-assessment of the wound
- Five rights of drug administration
 - Right patient
 - Right drug
 - Right time
 - Right dose
 - Right route

(Wounds UK, 2020)

Understanding the wound infection continuum



Scottish Ropper Ladder (2018)

Appendix 2

Scottish Ropper Ladder for Infected Wounds Guidelines for identifying infected wounds and when to start and stop using topical Antimicrobial Wound Dressings (AWD)



Each stage builds on the previous signs noted

Each stage builds on the previous treatment
*Refer to local guidance

Stage 4 - when 1 or more signs of systemic infection present:
May lead to sepsis if not treated

- Spreading cellulitis
- Pus/abscess
- Patient systemically unwell
- Pyrexia
- Raised white cell count/CRP
- Wound breakdown+/-satellite lesions.

Stage 4 - Treatment

- 1 Swab wound*
- 2 Consider: SEPSIS 6*; other source; blood cultures.
- 3 Start systemic antibiotics* and monitor patient.
- 4 If rapid deterioration immediate referral for urgent medical advice.
- 5 Consider topical AWD*.
- 6 Monitor wound progress, review at 2 weeks – see Stage 2, point 4, for actions.

Stage 3 - When 2 or more signs of spreading infection present:
Wound deteriorating

- Localised cellulitis/erythema
- Pain increasing
- Exudate: thick, haemopurulent or purulent
- Localised oedema
- Malodour increasing.

Stage 3 - Treatment

- 1 Swab wound*
- 2 Start topical AWD*.
- 3 Consider starting systemic antibiotics*.
- 4 Monitor wound progress*, review at 2 weeks – see Stage 2, point 4, for actions.
- 5 If signs of systemic infection, go to Stage 4.

Stage 2 - when 2 or more signs of local infection present:
Healing not progressing normally

- Exudate - high volumes
- Malodour
- Pain in or around wound
- Hypergranulation tissue
- Discoloured or bleeding granulation tissue
- Slough/necrosis.

Stage 2 - Treatment

- 1 DO NOT SWAB.
- 2 Consider biofilm disrupting cleansing solution.
- 3 Consider topical AWD*.
- 4 Monitor wound progress*, review at 2 weeks:
 - a If no signs of infection, STOP and return to Stage 1, point 4 for actions
 - b If improving, continue and review weekly until no signs of infection
 - c If static, review AWD* choice.
- 5 If signs of spreading infection, go to Stage 3.

Stage 1 - when 2 or more signs of Contamination/ Colonisation present:
Healing progressing normally

- Exudate - low to moderate volume
- Pain - minimal
- Odour - minimal
- Slough/necrosis.

Stage 1 - Treatment

- 1 DO NOT SWAB.
- 2 Identify aetiology of the wound and refer if any concerns e.g. vascular, lymphoedema.
- 3 Refer all diabetic wounds to diabetic podiatry/MDT.
- 4 Optimise wound healing with debridement and dressings*.
- 5 If no progress after 2 weeks review wound management plan.
- 6 If signs of local infection go to Stage 2.

START

To swab or not to swab?

- Wound swabbing should not be done routinely or without rationale (IWII, 2016)
- A wound swab is performed to isolate and identify micro-organisms in a wound, and to determine the antibiotic sensitivity of those micro-organisms (Bryant and Nix, 2016)

Acute and chronic wound infection

Acute wounds:

- Usually clear indicators of infection
- Swab — single organism
- Usually treat with antibiotics



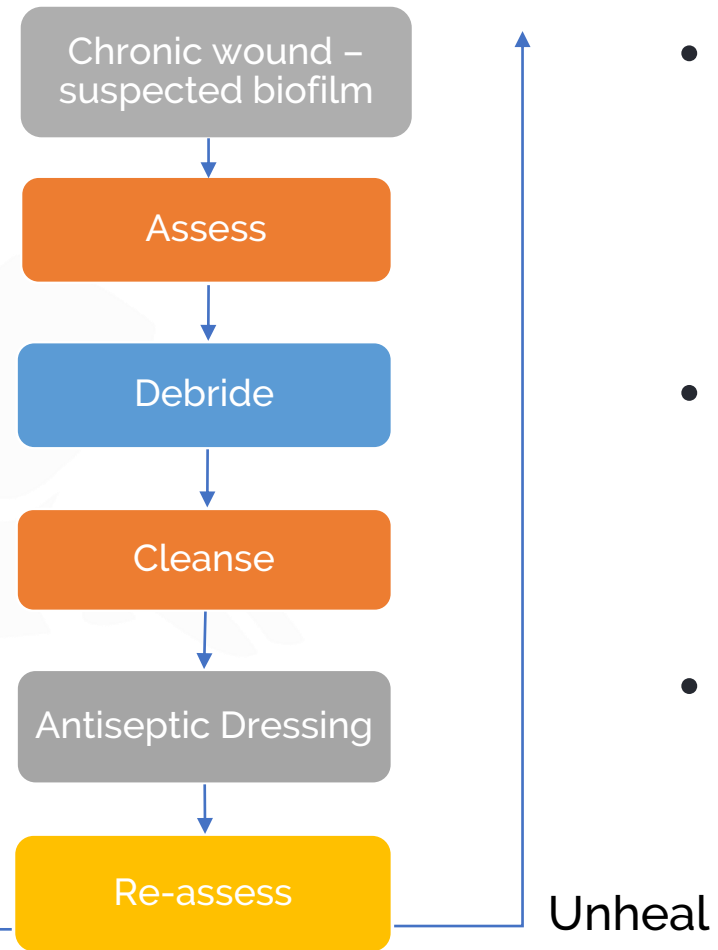
Acute and chronic wound infection

Chronic wounds:

- Local infections are more difficult to diagnose
- Swab — usually multiple mixed organisms
- 78.2% of chronic wounds have biofilm (Malone et al, 2017)
- Only use systemic antibiotics in chronic wounds when there is evidence of spreading/systemic infection

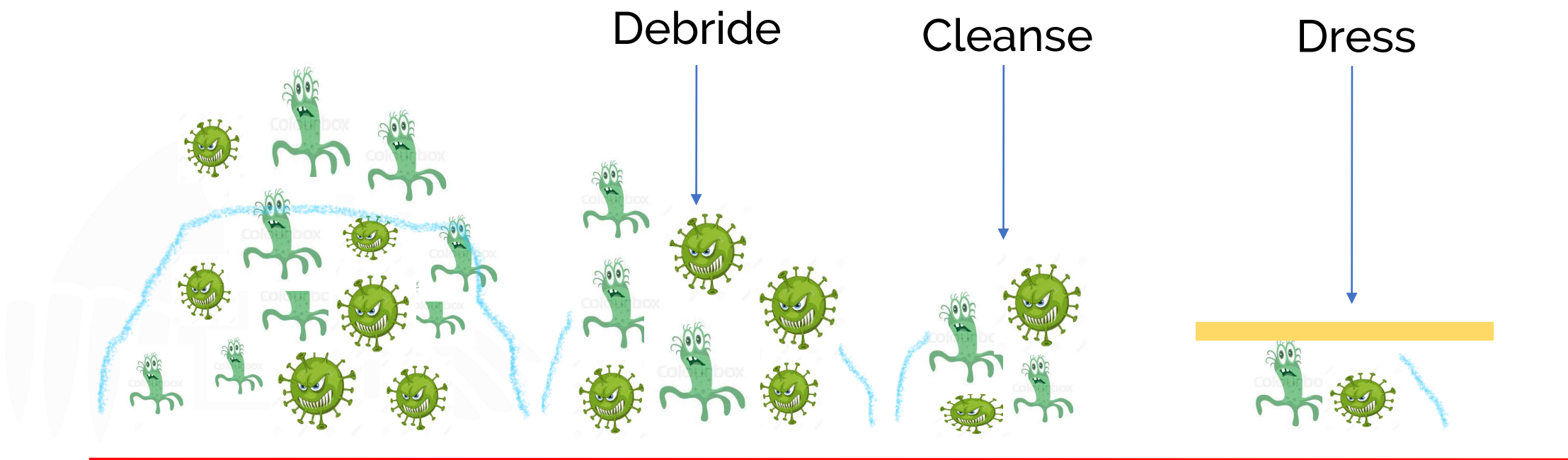


Biofilm-based wound care (chronic wounds)



- Aim is to reduce biofilm burden
 - Effective, speedy debridement
 - Vigorous cleansing with effective cleansing agent
 - Antiseptic dressings more effective on 'clean' wound bed
- Select dressing for antimicrobial agent and carrier dressing
 - Suppress biofilm reformation with topical antimicrobials
- Frequency of dressing change
 - Infection status
 - Exudate volume

Biofilm-based wound care



Wound bed

Identifying when to use antimicrobials

- Change in wound parameters
 - Increase in exudate, pain, redness, temperature, odour, measurements
 - Consider topical antimicrobials
- Change in the patient's clinical picture
 - Spreading or systemic infection, RED flags > think sepsis
 - Consider topical antimicrobials AND systemic antibiotics
- Biofilm presence
 - Biofilm-based wound care
 - Debridement, cleaning and topical antimicrobials

Two-week challenge

- Infected wounds should be assessed and reassessed as frequently as required. Daily changes may be needed initially
 - Many dressings have data to show they work up to seven days
- **Stop** after two weeks if signs and symptoms have resolved
- **Continue** with antimicrobial if the wound is progressing, but there are still signs and symptoms
- **Change** if there is no improvement, consider an alternative antimicrobial and refer to a specialist

Value of evidence-based clinical pathways in the fight against AMR

- Provide a written sequence of clinical processes
- Allow **clear** direction of **treatment**
- Ensure implementation of the **'Five rights'**
- Help clinicians treat patient using **Best Practice**
- Allow for **continuity** of care between clinical areas and clinicians

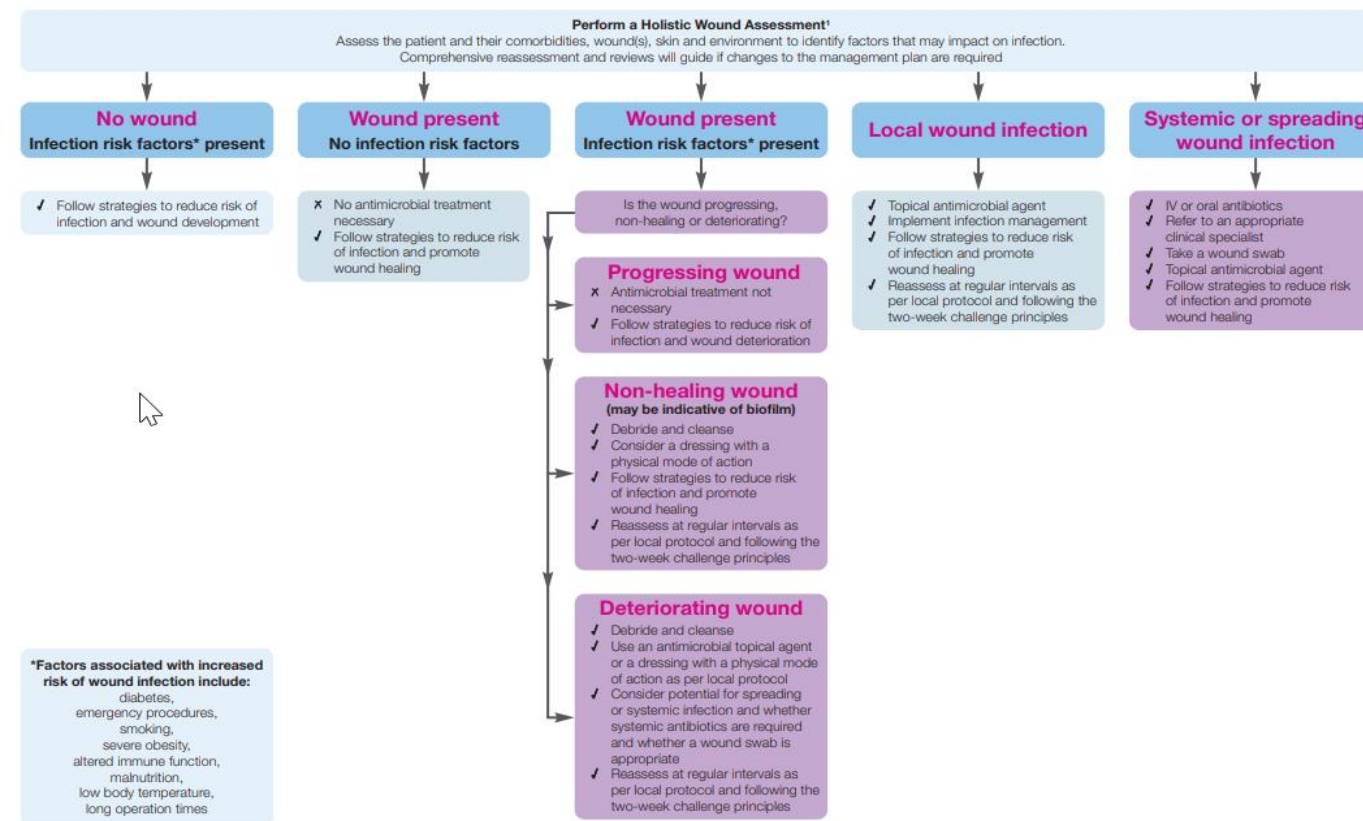
Best Practice Statement : Antimicrobial Stewardship in Wound Management, Wounds UK. 2020

Clinical pathway

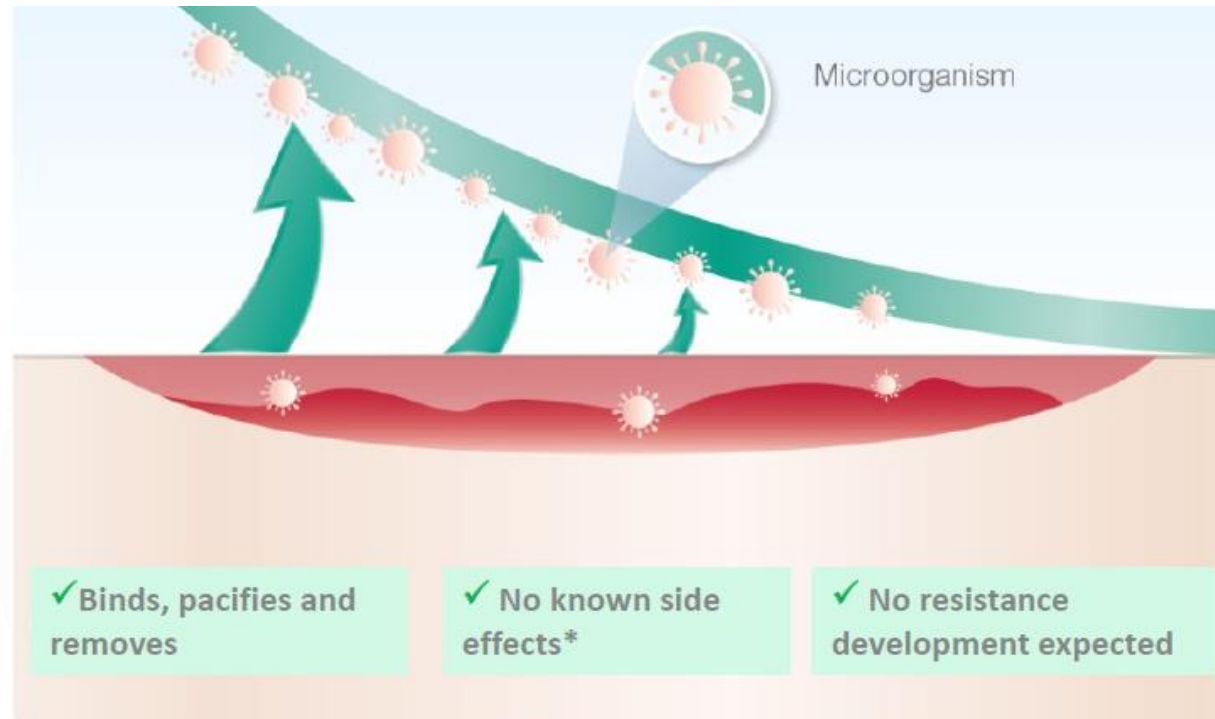
Clinical pathway based on AMS principles in wound care

(Wounds UK, 2020)

Antimicrobial Treatment Selection



Do I really need to use an antimicrobial dressing?



Dressings with a physical mode of action

These dressings remove bioburden without the need for an antimicrobial agent

‘Treatments for wound infection that do not involve the use of antibiotics, antimicrobials or antiseptics are essential in promoting AMS’ (WUWHS, 2020)

* In the case of Cutimed® Sorbact® gel please follow the corresponding IFU.

Dressings with a physical mode of action

- Dressings coated in Dialkylcarbamoyl Chloride (DACCC) known as Sorbact[®] Technology
- The DACCC coated surface has special characteristics and hydrophobic properties
 - Bacteria naturally bind and anchor to the surface
- No development of bacterial or fungal resistance expected



A narrative review of Sorbact® Technology (Chadwick and Ousey, 2019)

- **Aim:** present the clinical data on the use of Sorbact Technology covering a variety of wounds
 - Discusses effectiveness of bacterial-binding dressings on bacterial bioburden reduction, infection prevention, initiation/progression of wound healing and cost-effectiveness
- **Conclusion:** these dressings provide an important contribution to aiding the management and prevention of wound infection in a way that will not further exacerbate the resistance problems seen with the catastrophic overuse of antibiotics that has led to multiple resistant microorganisms



Key points going forward

- AMS requires a multidisciplinary team
- Education is key
- Rapid intervention if spreading infection or systemic infection suspected
- Topical antimicrobial treatment should be monitored
- Knowledge of dressing properties and antiseptics is required
- Knowledge of when, what and how to apply antimicrobial dressings is needed.
- Clinical decision-making must be based around AMR and AMS policies

Change is difficult for anyone, but in the current climate it is essential we adhere as much as possible to AMS strategies

Call to action

Essity has many support and educational tools including:

- Academy education
- Bitesize learning
- Ambassador programmes
- Support with pathway development

To find out more about our value-added services and obtain a copy of the **Best Practice Statement: Antimicrobial stewardship strategies for wound management** - contact Essity using conciierge.service@essity.com or speak to your local Essity Account Manager



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