LIVE ON FACEBOOK:

Antimicrobial resistance and implications for wound care

Wednesday, 20th November
19:00

Presented by **Alison Schofield**, *tissue viability service lead and clinical nurse specialist*;
Dawn Stevens, *medical education manager, Essity*

Journal of Community Nursing JCN

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Antimicrobial resistance and implications for wound care

Journal of Community Nursing
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Learning objectives

1. Antimicrobial resistance (AMR) and the extent of the problem
2. Government plan for AMR
3. How can we do our bit in wound care to reduce the need for antibiotics
4. Challenges in practice from a tissue viability nurse's perspective
5. The implementation of a pathway to help tackle AMR in wound care
6. Live Q&A with Alison Schofield

Antibiotic Awareness Week

- Each November, World Antibiotic Awareness Week (WAAW) aims to increase global awareness of antibiotic resistance and to encourage best practices among the general public, health workers and policy makers to avoid the further emergence and spread of antibiotic resistance

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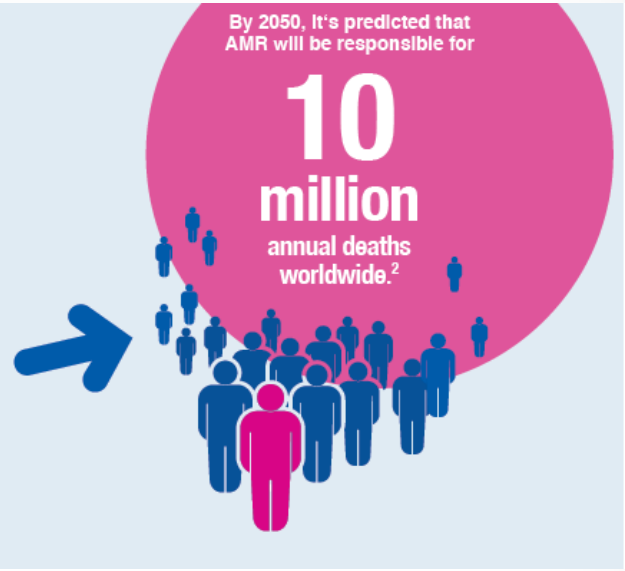
Antimicrobial resistance

- Antimicrobial resistance arises when the organisms that cause infection evolve ways to survive treatments
- The term antimicrobial includes antibiotic, antiprotozoal, antiviral and antifungal medicines
- Resistance is a natural biological phenomenon, but is increased and accelerated by various factors such as:
  - misuse of medicines
  - poor infection control practices
  - global trade and travel

Antimicrobial resistance

- Concerns with antibiotics can be related to medical advances over recent years
- Organ transplantation and cancer chemotherapy need antibiotics to prevent and treat bacterial infections that can be caused by the treatment
- Without effective antibiotics, even minor surgery and routine operations could become high risk procedures if serious infections cannot be treated

Extent of the problem



- By 2030, the global human consumption of antibiotics is forecast to rise by more than 30%
  - up to 200% if it continues growing at current rates
- Animal health sector, the UK has reduced its use by 40% (2013/17)
- However, globally, there is an increase in meat production and consumption, predicting that antimicrobial use in animals worldwide will increase by 67% by 2030

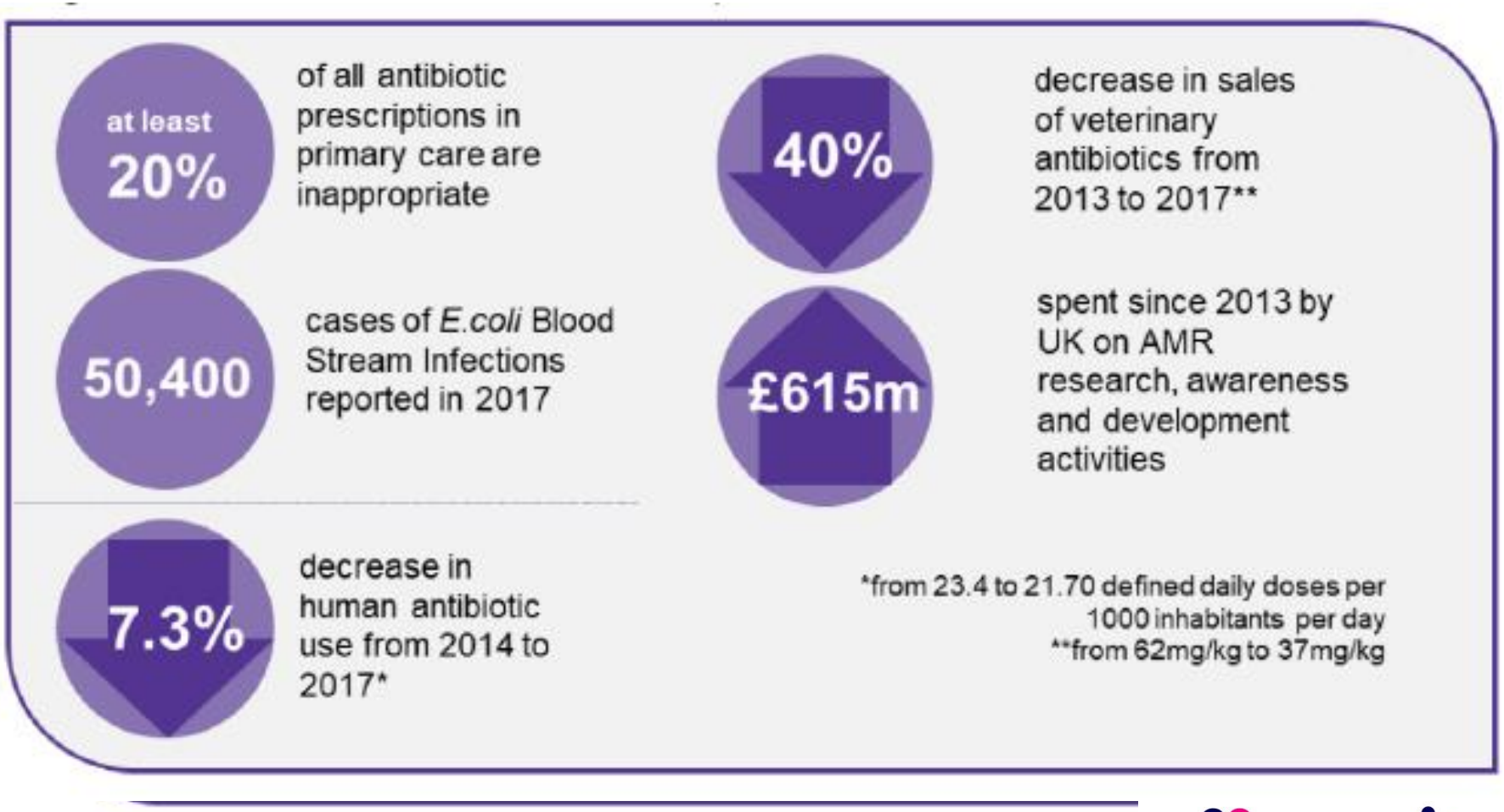
Government's 20-year vision

- By 2040, their vision is of a world in which antimicrobial resistance is effectively:
  - contained
  - controlled
  - mitigated
- They will contribute to the global effort through:
  - lower burden of infection, better treatment of resistant infections, and minimised transmission in communities, the National Health Service (NHS), farms, the environment and all other settings

Government's 20-year vision

- Optimal use of antimicrobials and good stewardship across all sectors, including:
  - access to safe and effective medicines that have been manufactured responsibly for all who need them
- New diagnostics, therapies, vaccines and interventions in use, and a full antimicrobial resistance research and development pipeline for antimicrobials, alternatives, diagnostics, vaccines and infection prevention across all sectors; with access to new and old technologies for all

Government's vision – snapshot of UK



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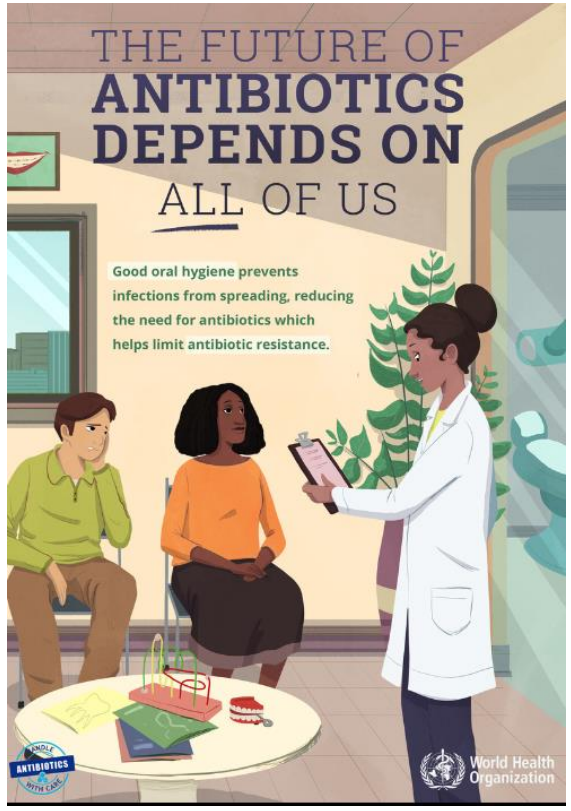
Government's vision – snapshot of UK

World Health Organization



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Effects on wound care

- Without effective antimicrobials for prevention and treatment of infections, medical procedures become high risk. These may include:
  - organ transplantation
  - cancer chemotherapy
  - diabetes management
  - major surgery (e.g. caesarean sections or hip replacements)

- Increasing the cost of health care, with lengthier stays in hospitals

Effects on wound care

- Resistance to first-line drugs to treat infections caused by *Staphylococcus aureus* is widespread
- People with MRSA (methicillin-resistant *Staphylococcus aureus*) are estimated to be 64% more likely to die than people with a non-resistant form of the infection

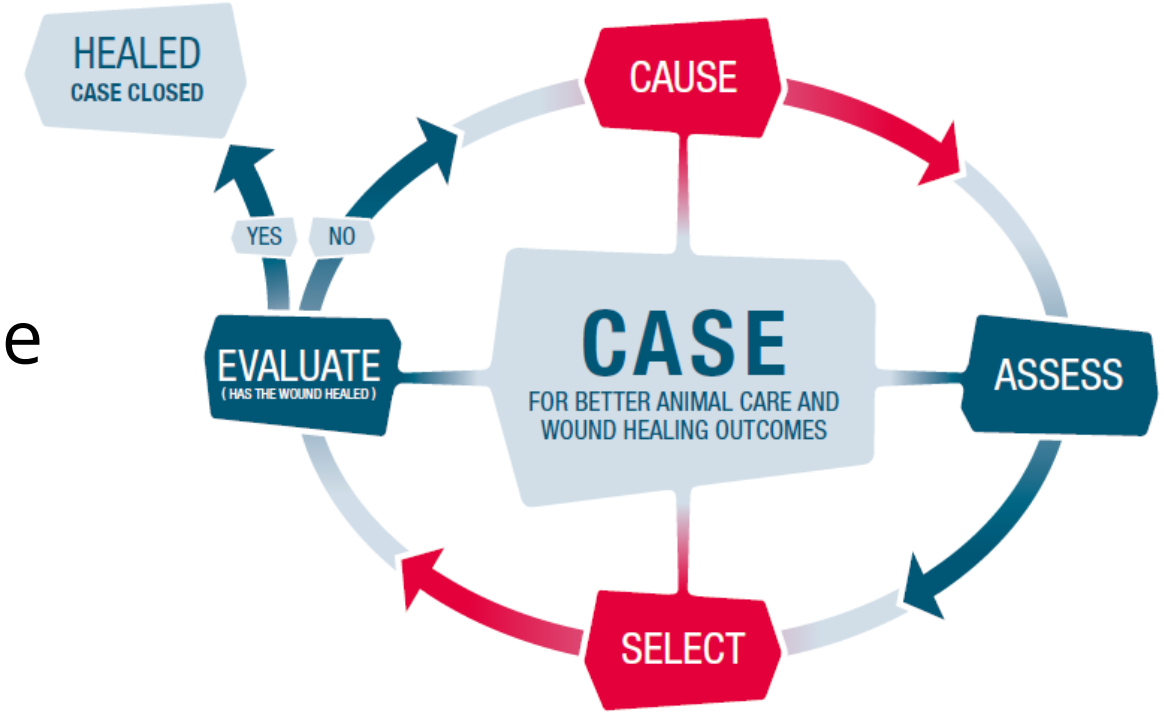
How can we do our bit in wound care?

- Understand and manage infection without the need for antibiotics where we can
- Know when an infection is local and when it is systemic
- Identify high risk patients during the assessment phase, so that a clear infection prevention plan can be put in place
- Use the most appropriate antimicrobial at the right time

How can we do our bit in wound care?

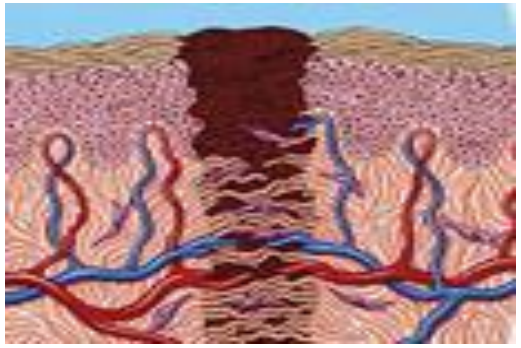
Wound assessment

- Requires accurate and timely assessment, which includes:
  - identifying the cause of the wound
  - assessing the wound and surrounding skin
  - selecting products
  - evaluating outcomes



How can we do our bit in wound care?

Phases of wound healing

Phase 1 Inflammation	Phase 2 Proliferation	Phase 3 Maturation
0–5 days	3–21 days	Day 21–up to 2 years
		
Haemostasis Vascular reaction / wound bed cleansing	Granulation Wound contraction Epithelialisation	Remodelling

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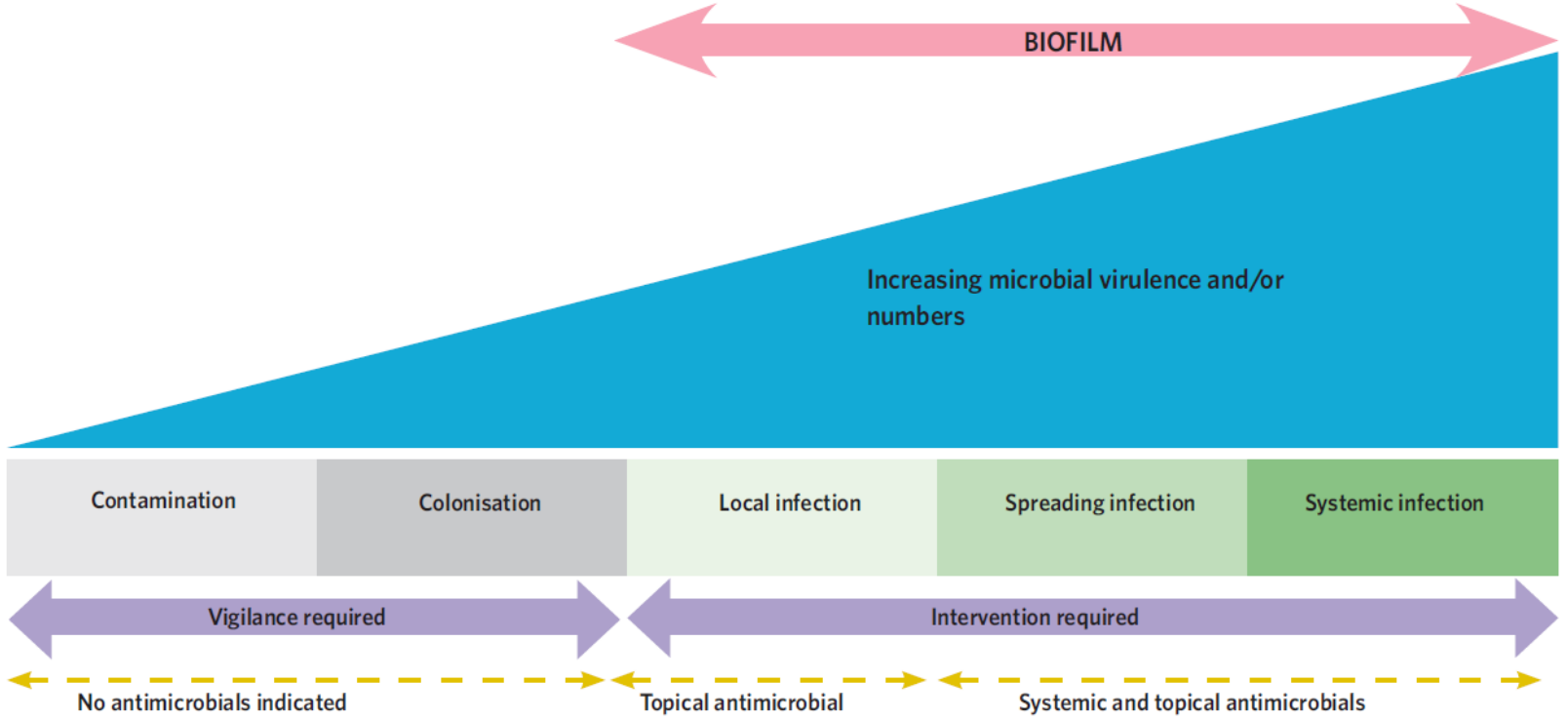
How can we do our bit in wound care?

Is the wound infected?



How can we do our bit in wound care?

Recognising signs and symptoms

- Four fundamental indicators:
  - erythema
  - pain
  - oedema
  - localised heat

How can we do our bit in wound care?

Including subtle signs

- Increased exudate volume
- Delayed healing
- Wound breakdown
- Pocketing at the base of the wound
- Epithelial bridging
- Friable granulation tissue
- Discoloration of the wound bed
- Abscess formation
- Malodour

How can we do our bit in wound care?

Identify risk factors

- Intrinsic factors:
  - malnutrition
  - underlying diseases affecting the immune response
  - respiratory disease, diabetes mellitus, renal disease
  - age

How can we do our bit in wound care?

Identify risk factors

- Extrinsic factors:
  - medication
  - environmental
  - invasive procedures
  - lifestyle choices

Dawn to Introduce Alison

Challenges in practice

- Inappropriate use of antimicrobials in practice
- Lack of holistic and wound assessment
- What to use for treatment and for how long
- The education around the infection continuum
- To swab or not to swab!

Pathway introduction

- The infection pathway was introduced recently to my practice area
- Pathways provide education and easy-to-follow guidance
- Standardises practice and ensures best practice is followed
- Ensures antibiotics and antimicrobials are prescribed correctly
- Prevention of infection is first-line treatment

The Health Care Professional must complete a holistic assessment and wound assessment (using TIMES framework).
It is the responsibility of the nurse to document in patients record, the wound assessment, rationale for treatment and reassessment of the wound

Consider Sepsis

Consider other sources of infection. See reverse for page for signs and symptoms.
IF SEPSIS IS SUSPECTED SEEK MEDICAL ATTENTION

No Infection

No antimicrobial required

Do you assess the patient as high risk?
See reverse page for criteria

- Yes
- No → Continue with treatment plan. Review in minimum 4 weeks

Stage 1
Use Prontosan solution to cleanse wound and help minimise risk of complications

Stage 2
Commence use of Cutimed Sorbact to prevent infection

Local Infection

Topical Antimicrobial

Stage 1
Use prontosan solution to cleanse wound and help minimise risk of complications

Stage 2
Commence use of Cutimed Sorbact for 2 weeks and review

Is the wound static?

- No
- Yes → Consider presence of Biofilm. Use Debrisoft pad to disrupt biofilm

Continue stage 1 and 2 for further 2 weeks

Is the wound progressing?

- Yes → If signs of infection has ceased then antimicrobials should be discontinued and wound re-assessed for the most appropriate dressing
- No → Refer to NLAG TVN or Chronic wound clinic

Spreading and Systemic Infection

Systemic and Topical antimicrobial

Take Swab of the wound before antibiotics and liaise with the GP for appropriate action.
Follow up wound swab results within 48 hours liaise with the GP for appropriate action

Stage 1
Use Prontosan (requires 10 mins soak) to cleanse wound and help minimise risk of complications

Stage 2
Commence use of antimicrobial from NLAG formulary

NHS
Northern Lincolnshire and Goole
NHS Foundation Trust

Framework Produced in reference to - "International Wound Infection Institute (IWII)
Wound Infection in clinical practice. Wounds International 2016"

Infection pathway

The pathway considers:

- Wound cleansing
- Biofilm disruption
- Stages of the wound and treatment choices
- Prevention of infection
- Red flags for spreading infection and sepsis

Holistic Assessment of the Patient

Consider the following:

- Nutritional status including fluid intake
- Co morbidities are they being managed effectively?
- Medication regimes
- Compliance with the treatment is there anything that is preventing compliance?

What is a High Risk Patient?

- Co morbidity that alters a patient's immune response
- Patient who has had 2 or more infections within the same wound previously
- Medications that can alter a patient's immune response (Chemotherapy)
- Diabetic patients type 1 and 2

Wound Assessment TIMES

T = Tissue type viable continue as healthy granulation tissue present. Non viable consider debridement options
before continuing
I = Inflammation or Infection review pathway if wound is infected
M = Moisture levels aim for a moist wound healing environment
E = Edge of the wound is epithelisation present?
S = is for surrounding skin care
If no progress observed please review the wound starting at T of TIMES

Cellulitis Guidelines

Diagnosis will include an assessment of the patient highlighting the following:

- Painful, hot, swollen, and tender skin, that spreads rapidly.
- Skin may have a glossy tight appearance, blisters may also be present
- Look for a skin break where the infecting organism may have entered
- Mark it with a pen to monitor for spreading infection
- Monitor for early signs of sepsis and if suspected contact the GP urgently or if appropriate ring for an ambulance
- Cellulitis can often be misdiagnosed and could be:
- Lipodermatosclerosis hardened, tight, red or brown skin, typically affecting the inner aspect of the calf
- Venous eczema red, scaly or flaky skin, which may have blisters and crusts on the surface

Signs and Symptoms of Wound Infection

Local and spreading

- Hyper granulation
- Bleeding friable granulation
- Epithelial bridging and pocketing in granulation tissue
- Wound deterioration
- Delayed wound healing beyond expectation
- New or increasing pain
- Increase malodour
- Redness around the wound

Spreading Infection

- Extending in induration
- Lymphangitis Crepitus
- Wound breakdown / dehiscence with or without satellite lesions
- Malaise
- Loss of appetite Inflammation, swelling of lymph glands

Systemic infection

- Severe sepsis
- Septic shock
- Organ failure
- Death

Suspected biofilm in the chronic wound: are any of the following present?

- Absence of healing progression, even though all obvious comorbidities and wound management issues have been addressed
- Visible, slimy, gel like and shiny material on the surface of the wound bed, which detaches easily and atraumatically from the wound bed
- Re forming of slough quickly, despite debridement
- An increase in the production of exudate
- Poor quality granulation tissue possibly fragile and / or hypergranulation
- Signs of local infection (as biofilm is a precursor to infection) e.g. heat, redness, swelling, pain, odour

References:
Antimicrobials made easy. Wounds International, (2011),Vol 2 (1) www.woundsinternational.com
Antibiotic Resistance: we must act now Says WHO NHS Choices. (2012) Nursing times.
Best Practice Statement: The use of topical antiseptic / antimicrobial agents in wound management. 3nd edition. (2013). Wounds UK.
NICE. (2015). Cellulitis acute. Available: http://cks.nice.org.uk/cellulitis acute!topicsummary. Last accessed 06/09/2016.
CREST (2005) Guidelines on the management of cellulitis in adults.Clinical Resource Efficiency Support Team. www.gain ni.org
NEWS 6 steps of Sepsis ps://www.rcplondon.ac.uk/projects/outputs/national early warning score news 2

Antimicrobial Choice

The use of antimicrobial wound care products must have been discussed with case load holder and clinical reasoning form completed and reviewed in 2 week. N.B if using Green or Amber pathway proceed steps on pathway

Signs Of Sepsis: Red flags

- Respiration rate: more than >25 per minute
- Oxygen saturation: SpO2 < 92%
- Systolic blood pressure: < 90mmHg or drop >40 from normal
- Pulse rate: >130 beats per minute
- Level of consciousness or new confusion
- Temperature: High temperature
- Non blanching rash, mottled / ashen / cyanotic
- No passed urine in the last 18hrs.
- Response only voice or pain / unresponsive

Guide for wound infection

- A guide for signs and symptoms of infection
- How to complete a wound assessment using TIMES
- Consideration of delayed wound healing signs
- Cellulitis signs and symptoms
- How to use antimicrobials

Case study

- 73-year-old gentleman
- Type 2 diabetes
- Knock to the leg in July 2019
- Admitted to hospital with cellulitis to leg and pneumonia — developed sepsis
- Treated with systemic intravenous (IV) antibiotics
- Referred to diabetic foot team as inpatient
- Discharged to community services in August 2019

Case study continued

5 August 2019

Case study continued

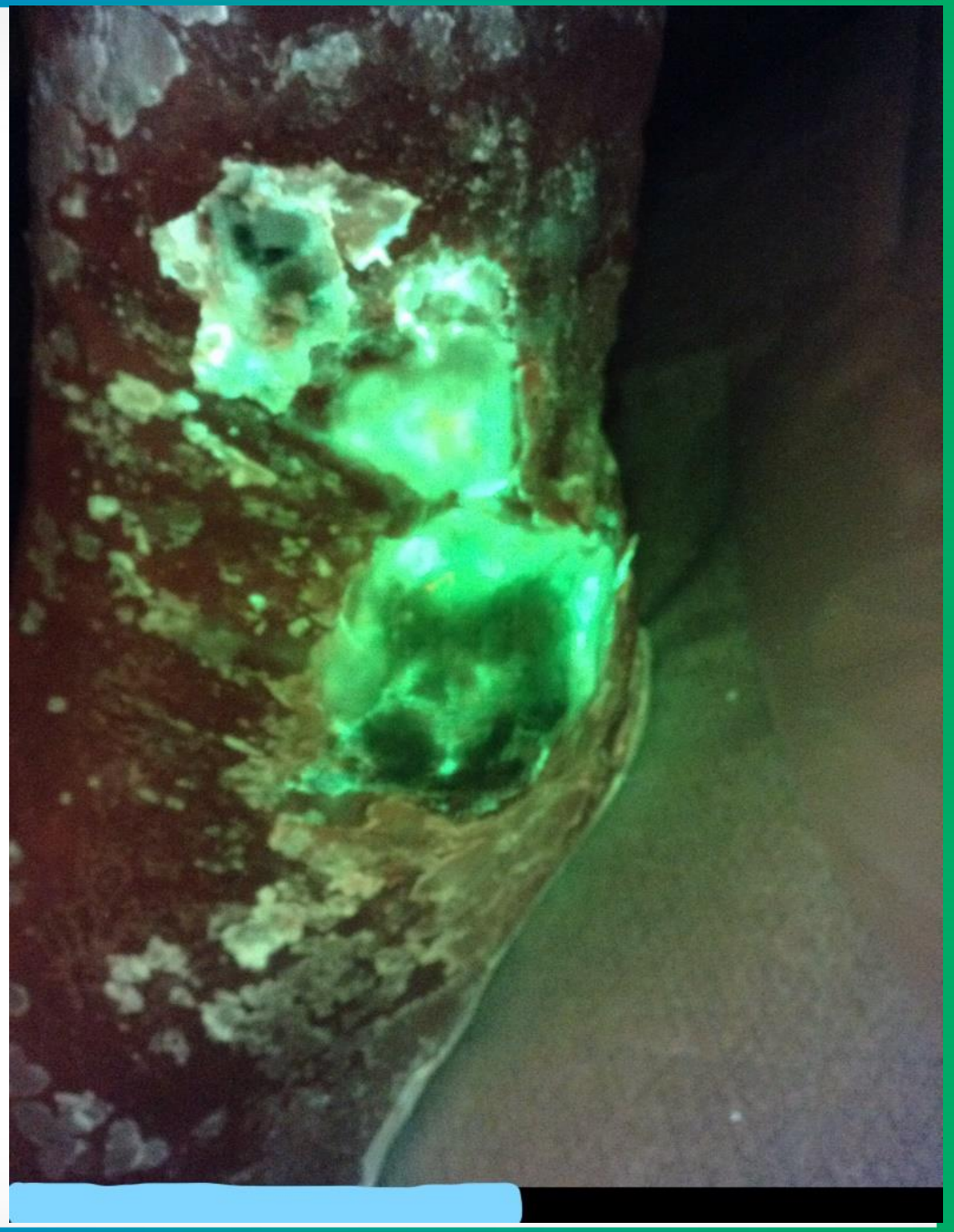
Referred to tissue viability nurse, 16 August 2019

Case study continued

- Full lower limb assessment, including ankle brachial pressure index (ABPI) performed
- Fluorescent imaging taken of wound using MolecuLight™ device
- Identified areas of *Pseudomonas* bacteria
- Targeted cleansing and Cutimed® Sorbact® applied
- Patient and family very concerned

Case study continued

Fluorescent imaging



Case study continued

After cleansing

Case study continued

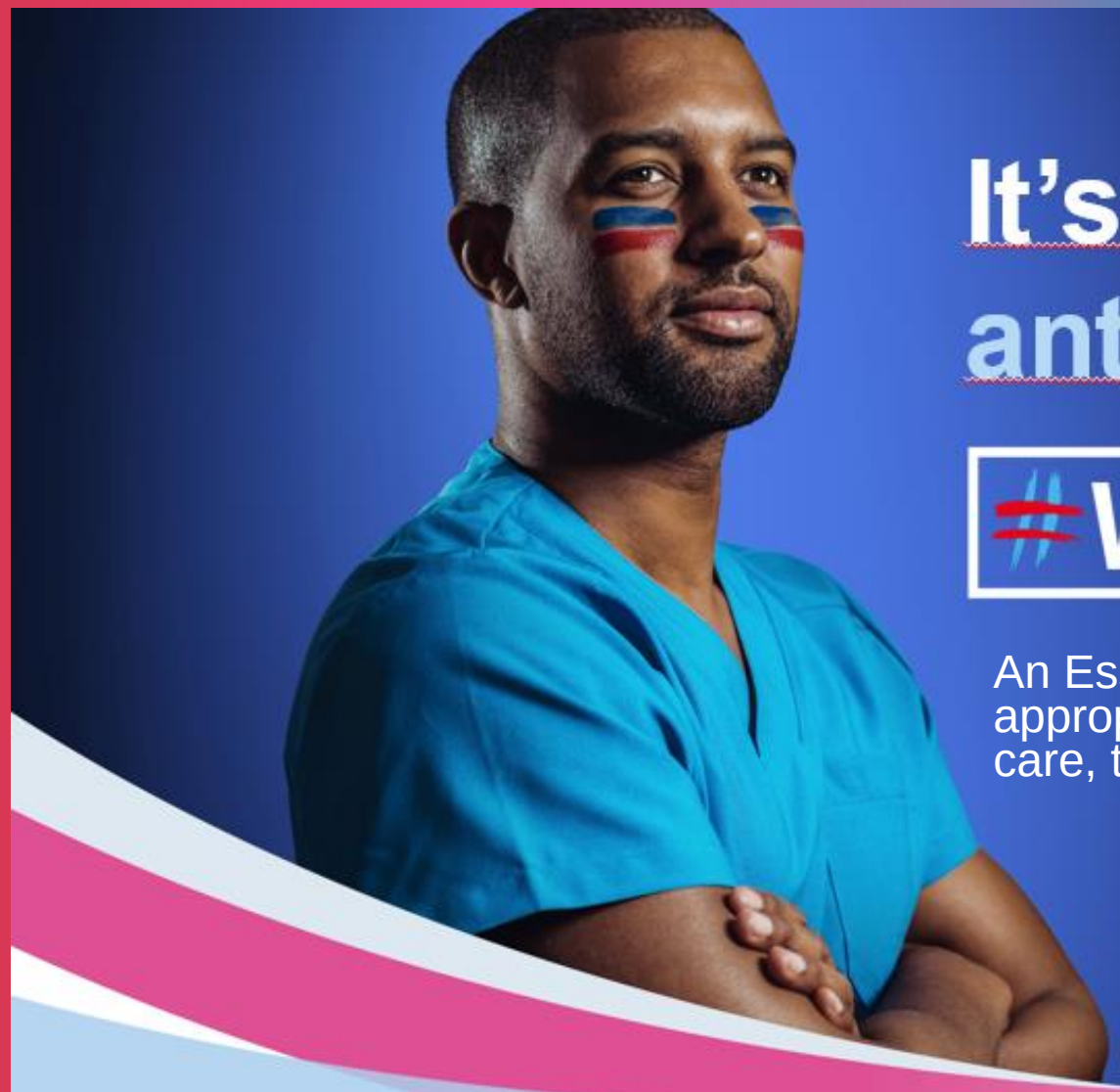
Four weeks following Cutimed® Sorbact® and compression bandaging

Case study continued

12 weeks later:

- Ulcer almost healed
- Patient and family relieved
- Quality of life improved
- No antibiotics required in the 12 weeks
- No swab taken
- Bacteria managed
- No infection

Dawn and Alison’s Live discussion



It's time to fight antimicrobial resistance

#Wound_Warriors

An Essity initiative aiming to support and educate clinicians on appropriate infection prevention and management in wound care, to avoid the unnecessary use of antibiotics.

Leukoplast®

Cutimed®

Appropriate wound care for infection prevention and management can play a powerful role in the fight against AMR

Cutimed® Sorbact® and Leukomed® Sorbact® offer an extensive range of wound management products which may help avoid excessive use of antibiotics in wound care. **Both utilise the safe and effective Sorbact ® Technology** that binds bacteria with a purely physical mode of action. Sorbact® Technology removes bacteria without releasing possibly harmful endotoxins.[1]

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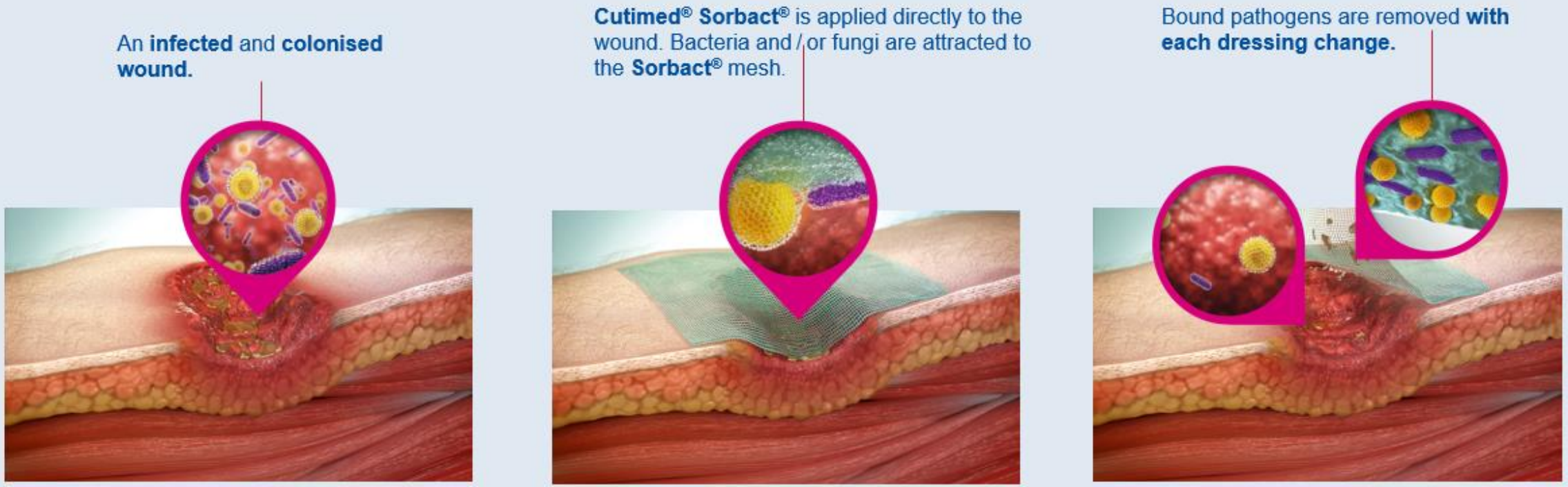
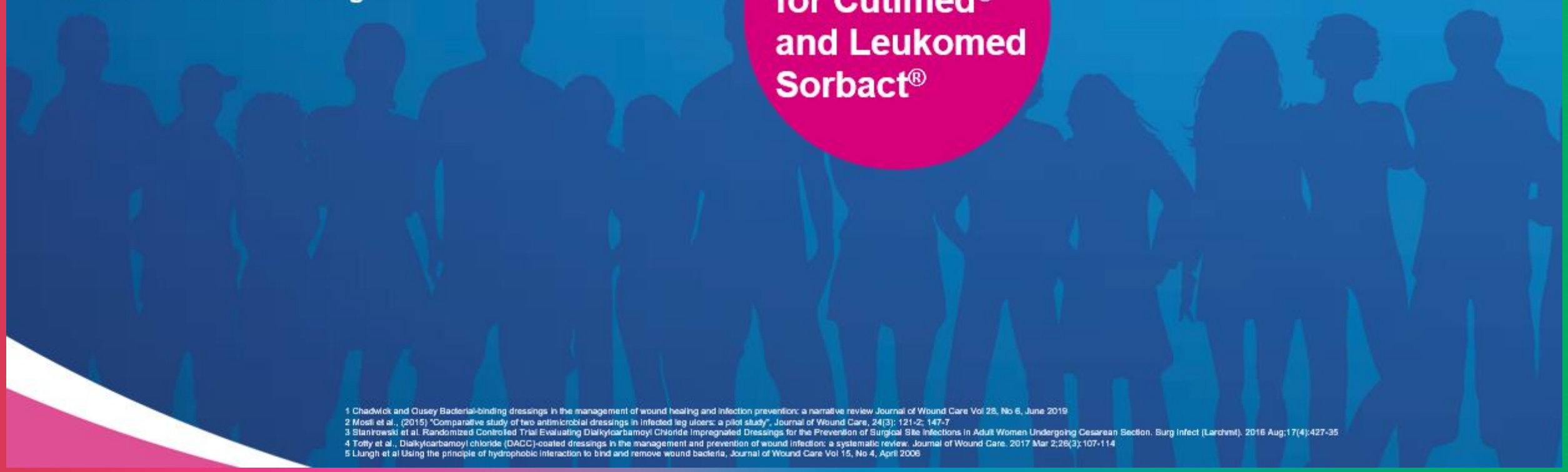


1. Susilo YB, Husmark J, DACC Coated Wound Dressing and Endotoxin: Investigation on Binding Ability and Effect on Endotoxin Release from Gram-negative Bacteria. Poster presented at EWMA 2019.

New narrative review shows 4,044 patients were successfully treated in clinical studies with Sorbact® Technology[1]

- Wound infection prevention and management[2,3,4]
- Purely physical mode of action
- Binds bacteria and fungi[5]

Evidence keeps growing for Cutimed® and Leukomed Sorbact®



1 Chadwick and Ousey Bacterial-binding dressings in the management of wound healing and infection prevention: a narrative review Journal of Wound Care Vol 28, No 6, June 2019
2 Mosti et al., (2015) "Comparative study of two antimicrobial dressings in infected leg ulcers: a pilot study", Journal of Wound Care, 24(3): 121-2; 147-7
3 Stanirowski et al. Randomized Controlled Trial Evaluating Dialkylcarbamoyl Chloride Impregnated Dressings for the Prevention of Surgical Site Infections in Adult Women Undergoing Cesarean Section. Surg Infect (Larchmt). 2016 Aug;17(4):427-35
4 Totty et al., Dialkylcarbamoyl chloride (DACC)-coated dressings in the management and prevention of wound infection: a systematic review. Journal of Wound Care. 2017 Mar 2;26(3):107-114
5 Llungh et al Using the principle of hydrophobic interaction to bind and remove wound bacteria, Journal of Wound Care Vol 15, No 4, April 2006

Join the fight against AMR, with

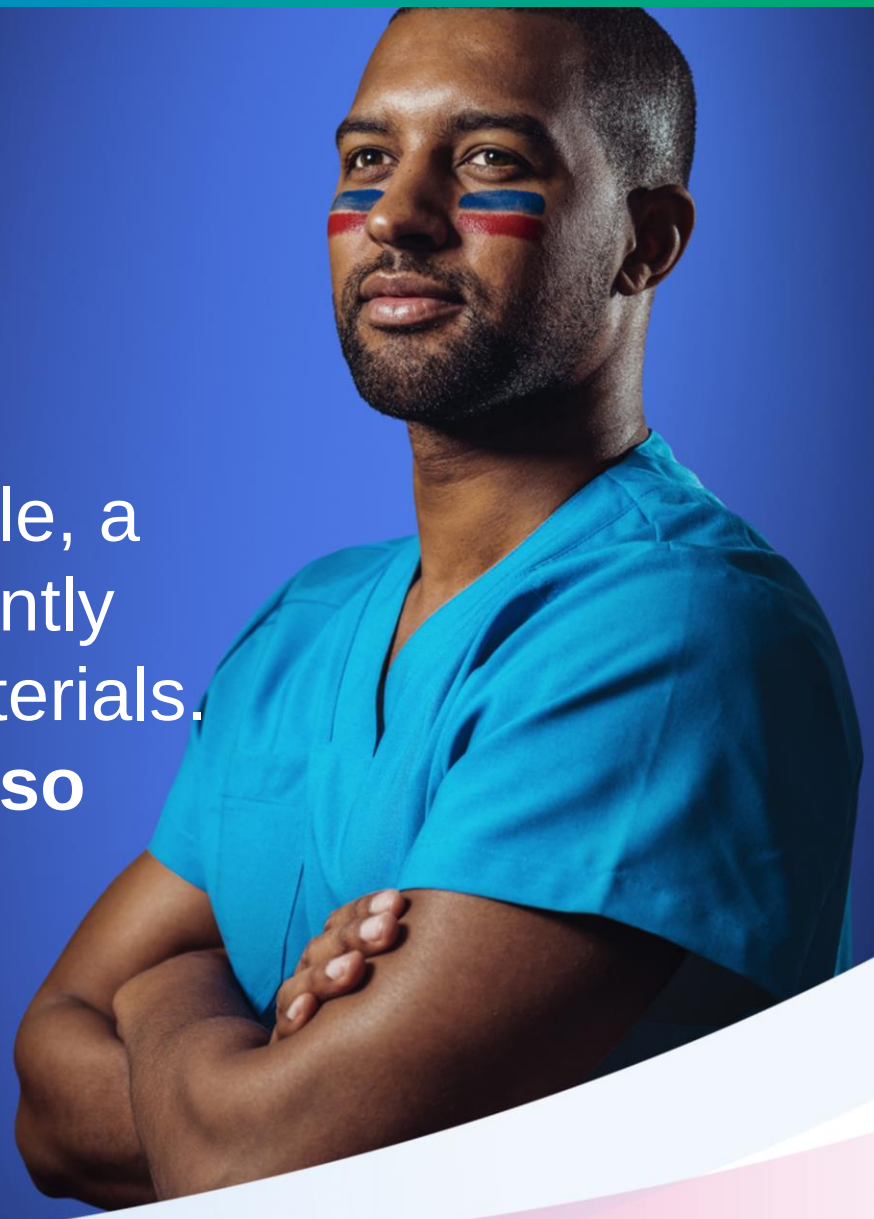
#Wound_Warriors

Fill in your CPD details for your certificate at the end of the programme and indicate if you would like to receive our AMR toolkit

Join the fight against AMR, with

#Wound_Warriors

Toolkit includes a Cutimed Sorbact sample, a copy of the infection pathway Alison recently implemented and supporting product materials. **Free patient evaluation samples are also available.**



Essity Value Added Services

- Essity Academies of Clinical Excellence
- Additionally we have a strategic healthcare partners team dedicated to support with pathway development and implementation meeting your objectives and needs
- Support with helping you and your local CGG and trusts to implement long term strategies to improve the clinical and financial outcomes of your organisation

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