Clinical and laboratory evidence aligning DACC™-coated wound dressings with Antimicrobial Stewardship: a white paper

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Executive Summary

Antimicrobial resistance (AMR) is becoming one of the most significant healthcare challenges of the 21st Century, with the potential to cause an estimated 10 million deaths by 2050. Crucially, the rapid emergence of resistant bacteria is endangering the efficacy of antibiotics, which since their inception have saved millions of lives, However, many decades after the first patients were treated with antibiotics, bacterial infections have again become a threat. This antibiotic resistance crisis has been attributed to the overuse and misuse of these medications, as well as a lack of new drug development by the pharmaceutical industry. The World Health Organization (WHO) has stated that AMR represents one of the top ten threats to public health worldwide, as it compromises our ability to treat even minor infections, seriously jeopardizes surgical procedures and other advanced medical interventions. The most critical group of all includes multidrug resistant bacteria that pose a particular threat in hospitals, nursing homes, and among patients whose care requires devices such as ventilators and blood catheters. They include Acinetobacter, Pseudomonas and various Enterobacteriaceae (including Klebsiella, Escherichia coli, Serratia, Proteus and Staphylococci).

Antimicrobial Stewardship (AMS) has been developed as a strategy to combat the rise in AMR with a focus on reducing the inappropriate use of antimicrobials by following simple rules and guidelines. AMS programmes have provided a systematic effort to inform, educate and persuade prescribers of antimicrobials to follow evidence-based prescribing, to stem antibiotic overuse and help reduce AMR.
AMS is founded upon multi-modal interventions and in the field of AMS in wound care, this can include the consideration of wound dressings to minimise the need to use antibiotics and antimicrobials.

There is a considerable amount of laboratory and clinical evidence that supports the use of one such dressing DACC™-coated wound dressings (Sorbact® Technology dressings) that with a physical mode of action binds bacteria to the dressing surface and antimicrobial resistance is not expected.
Consequently, DACC™-coated wound dressings (Cutimed® Sorbact® and Leukomed® Sorbact®) can be used and supports AMS in wound treatment.

Antibiotics have saved millions of lives, but the development of resistance to them is becoming one of the most significant healthcare challenges of the 21st Century.

- WHO has stated that AMR represents one of the top ten threats to public health worldwide.
- AMS has been developed as a strategy to combat the rise in AMR with a focus on reducing the inappropriate use of antimicrobials and by using alternatives that do not cause resistance.
- Based on a purely physical mode of action DACC™-coated wound dressings Cutimed® Sorbact® and Leukomed® Sorbact® may lower the use of antibiotics and contribute to the management and prevention of wound infection as a part of an AMS strategy.

Contents

Glossary

Term	Definition
Antimicrobial resistance (AMR)	when microorganisms change over time and no longer respond to medicines (antimicrobial agents) making infections harder to treat and increase the risk of disease spread.
Antimicrobial Stewardship (AMS)	a set of coordinated measures designed to improved and appropriate use of antimicrobials to improve outcomes, reduce microbial resistance, and decrease the spread of infections.
Bacterial endotoxins	a component of the outer membrane of the cell wall of gram-negative bacteria. They are released from bacteria after cell death and lysis of the cell and are implicated in the development of gram-negative shock.
Biofilm	a thin community of bacteria enclosed in a self-produced matrix that adheres to a biological or non-biological surface. The formation of a biofilm creates a barrier resistant to the effects of antibiotics.
Debridement	a medical procedure to remove dead, damaged, or infected tissue from a wound to improve the healing potential of the wound.
Dialkylcarbamoyl chloride DACC™-coated dressings	wound dressings coated in a fatty acid derivative that irreversibly binds bacteria at the wound surface that are then removed when the dressing is changed. Wound dressing examples include Leukomed® Sorbact® and Cutimed® Sorbact®.
Granulation tissue	new connective tissue that forms on the surface of a wound during the healing process.
Implant	device(s) or tissue(s) placed inside or on the surface of the body to replace missing body parts (e.g., prosthetics) or deliver medication, monitor body functions, or provide support to organs and tissues.
Intravenous (IV)	within or administered into a vein.
National Institute for Health and Care Excellence (NICE)	an executive non-departmental public body of the Department of Health and Social Care in England that publishes a variety of guidelines (e.g., the use of new and existing medicines, treatments, and procedures).
Nosocomial	a disease acquired in a healthcare facility. Also referred to as healthcare-associated or hospital-acquired infections.
Pilonidal sinus	a small hole or tunnel in the skin of the cleft at the top of the buttocks that can form a small cyst or abscess. It may fill with fluid or pus when infected.
Planktonic	free-living bacteria.
Prophylactic	preventing the spread or occurrence of disease or infection.
Randomised controlled trial (RCT)	a type of experiment or study on two or more groups to assess the impact of an intervention. Participants are randomly assigned to receive an intervention (experimental group(s)) or not (the control group).
Re-epithelialisation	the resurfacing of a wound with new epithelium. It is usually the final healing stage of a wound whereby the surface layer over the wound regenerates from the edges of the wound site.
Sorbact® Technology	DACC™-coating on the wound dressings (e.g. Sorbact®, Cutimed® Sorbact®, Leukomed® Sorbact®, Cutimed® Siltec® Sorbact® and Cutimed® Sorbion® Sorbact®).
Surgical site infection (SSI)	an infection that occurs at the site of a surgical operation.
World Health Organisation (WHO)	a United Nations agency to coordinate international health activities and to aid governments improve their health services.

Part 1:

To identify the current status of antimicrobial resistance and the Antimicrobial Stewardship guidelines designed to alleviate the problems caused by this dilemma.

Antimicrobial resistance

Antimicrobials – including antibiotics, antivirals, antifungals and antiparasitics – are medicines used to prevent and treat infections in humans, animals, and plants. Antimicrobial resistance (AMR) occur when bacteria, viruses, fungi, and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness, and death.[1] The overuse and inappropriate use of antibiotics are the main drivers in the development of antimicrobial-resistant pathogenic bacteria through the selection of antibiotic- resistant strains.[2] A strong association between antibiotic prescribing and the development of resistance has been found.[3] As a result of this resistance, some antibiotics and other antimicrobial medicines become ineffective and certain infections become increasingly difficult or impossible to treat. A review on AMR estimated that as many as 10 million deaths could die annually from AMR by 2050.[4] In a recent study in the Lancet, in 2022, using predictive statistical models, it was estimated that there were in the region of 4·95 million (3·62–6·57) deaths associated with bacterial AMR in 2019.[5]

Antimicrobial resistant biofilm

Wound infections account for high morbidity and mortality, with an estimated a total prevalence of chronic wounds of 1.67 per 1000 population[6] and the incidence of surgical site infections varying from 2.1 to 7.1 for every 1000 operations undertaken for clean and dirty surgery respectively.[7] Apart from morbidity and social implications of living with a wound infection, the financial costs to the NHS are significant, with the costs of SSI alone estimated at £700 million per annum.[8]

In chronic wound care, bacterial colonization, biofilms production, and infection are huge global problems, compounded by the increased incidence of Multi Drug Resistant Organisms found in these patient's wounds.[9] Chronic wounds have a complex microenvironment that houses multiple bacterial species and the development of mechanisms involved in the biofilms phenotype strengthen microorganism tolerance to antimicrobial treatments, resulting in either extended or ineffective treatment regimens.[10]

Current Status of Antimicrobial resistance

AMR is a well-recognized urgent global public health priority,[11-13] claiming at least 700,000 lives per year worldwide with the estimated ten million deaths by the year 2050 leading to an estimated cost of US$100 trillion to the global economy.[14] AMR infections are now a leading cause of deaths globally.[5] The six leading pathogens for deaths associated with resistance (Escherichia coli, followed by Staphylococcus aureus, Klebsiella pneumoniae, Streptococcus pneumoniae, Acinetobacter baumannii, and Pseudomonas aeruginosa) were responsible for 929 000 (660 000–1 270 000) deaths attributable to AMR and 3.57 million (2.62–4.78) deaths associated with AMR in 2019.[5]

In 2017, the World Health Organisation (WHO) identified a list of global priority pathogens; 12 species of bacteria with critical, high, and medium antibiotic resistance (Figure 1) to encourage the prioritisation of funding, align research and development efforts priorities, and encourage global coordination in the fight against AMR in microorganisms.[15]

It is imperative that new antimicrobial agents (e.g., antibiotics and non-active/medicated agents) are developed to counteract the rise in AMR.[17] However, there has been a dearth in the development of such agents[18] and this has exacerbated the impact of AMR globally.[19] Nonetheless, there have been developments in this area, including the use of antimicrobial products that do not rely on an active agent affecting microorganisms but act by a physical mode of action (e.g. dialkylcarbamoyl chloride - DACC™-coated dressings). Antimicrobial agents that do not rely on an active agent minimises the risk of AMR. Part 2 of this White Paper presents in vitro and in vivo evidence as to how this works.

Additionally, to combat AMR, the optimisation of antimicrobial use in human health is required, and a strategy referred to as AMS has been developed (internationally). This strategy includes promoting appropriate use of antimicrobials through implementation of evidence- based interventions.

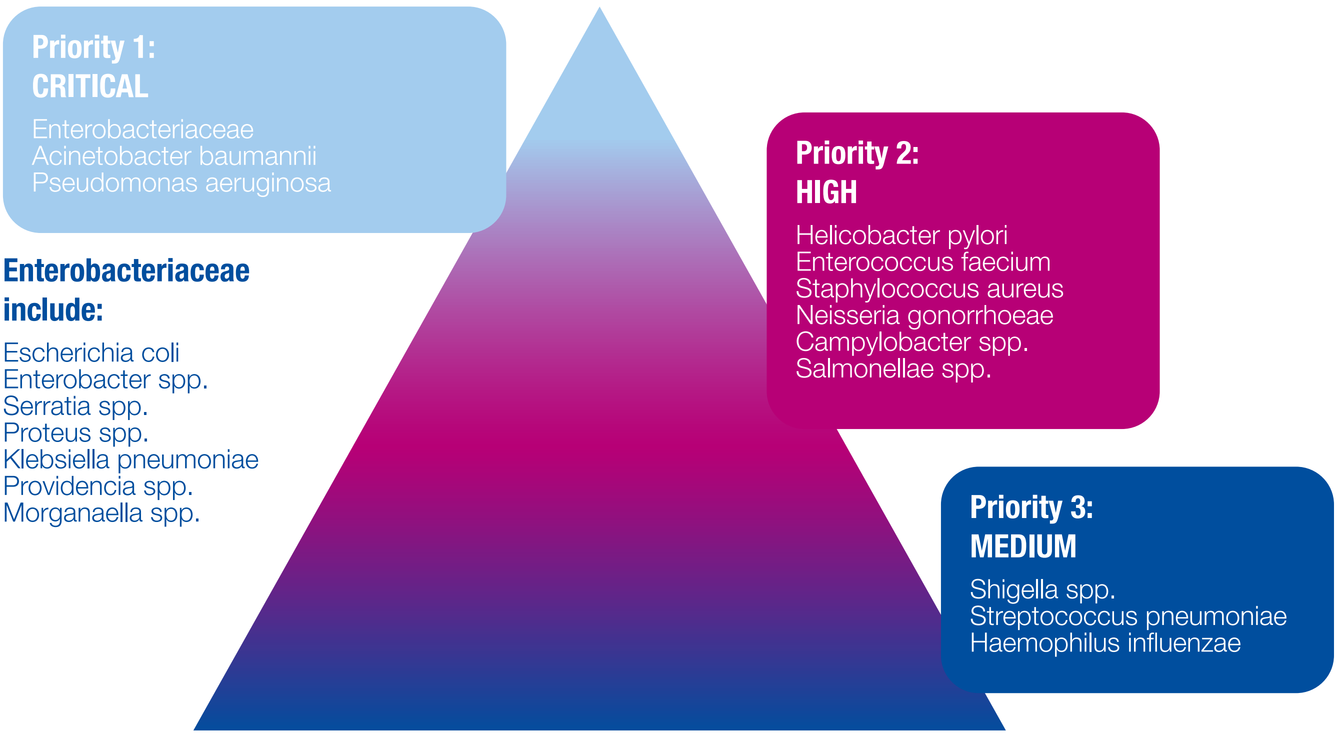

Figure 1.
WHO priority pathogens list
(adapted from Tacconelli et al, 2018 [16])

Antimicrobial Stewardship

The rise of AMR has driven the initiation and integration of AMS programs targeting antimicrobial prescribing worldwide.[20-22] AMS is designed to optimize rational antimicrobial use through evidence- based interventions endeavors to decreases the rate of development and acquisition of AMR.[23,24] Successful AMS must be a collaborative multidisciplinary team effort across the whole of a patient's care that results in the timely and optimal selection and use of antimicrobial agents (Figure 2). Nurses have been identified as playing a central role in the application of AMS to patients.[25-27] To enable implementation of AMS, primarily there is a need to ensure that everybody is aware of it and the need to use antimicrobials appropriately.[28] This awareness requires a continuing program of education to ensure understanding of the concepts that underpin AMS allowing for appropriate use of antibiotics, antimicrobials, and antiseptics.[29] As well as education there is a requirement to audit antimicrobial use, to compare pre with post-AMS introduction and ascertain what the impact of the program has been, for example, has there been any difference in prescribing of antimicrobials.[30]

- AMR is a growing problem in all healthcare sectors (including wound care)
- AMS has been developed to overcome AMR
- Awareness and education of both AMR and AMS are key elements that can aid implementation

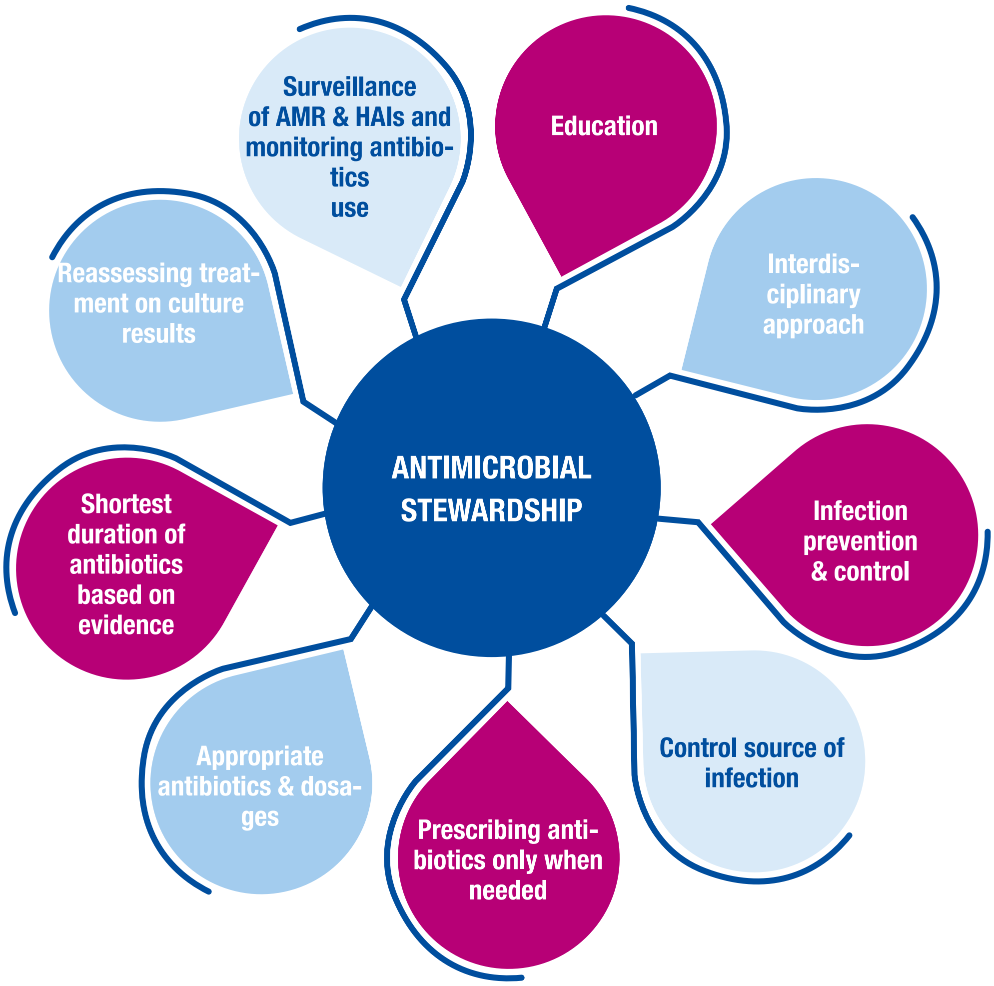

Figure 2.
Core elements of Antimicrobial Stewardship

Part 2:

Laboratory and clinical evidence for the effectiveness of DACC™-coated wound dressings having an antimicrobial effect in the prevention and treatment of infection

Various antimicrobial wound dressings using silver, iodine or polyhexamethylene biguanide (PHMB) have all been used to try to reduce the microbial burden within wounds.

DACC™-coated wound dressings (e.g. Cutimed® Sorbact®, Leukomed® Sorbact® based on Sorbact® Technology) have an antibacterial effect without the release of active substances and utilises its utilises its unique hydrophobic surface, which interacts with bacteria that possess cell surface hydrophobicity.[31] As a result, when the hydrophobic, DACC™-coated surface comes into contact with the hydrophobic bacteria surface, binding between those two occurs through hydrophobic interaction and expulsion of water molecules, this subsequently results in irreversible binding (as shown by the SEM images, Figures 3A and 3B and 4). The bound microorganisms then can be subsequently removed from the wound.[32]

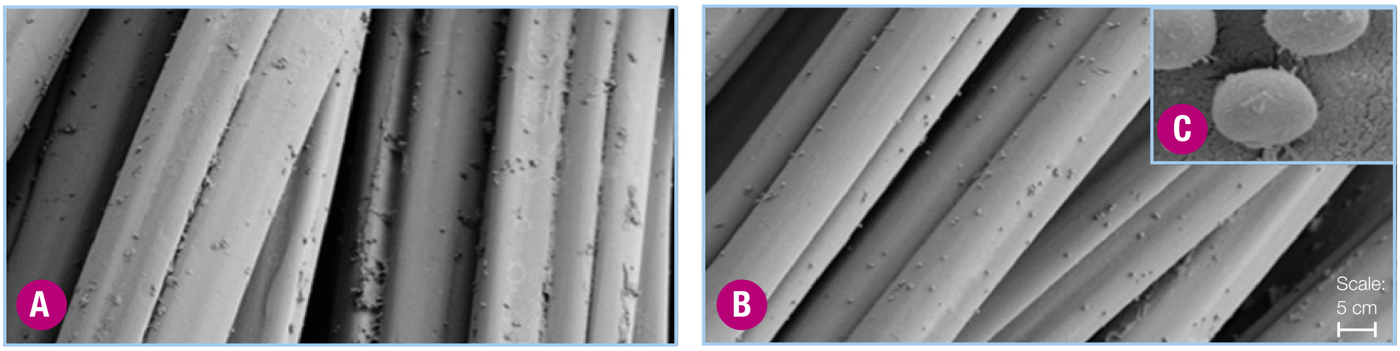

Figure 3A and 3B.
Photomicrographs of bacteria adherent to DACC-coated fibers
(Adapted images from Centre of Cellular Imaging, from Husmark et al, 2022[32])

Figure 4.
Schematic representation of mode of action for DACC™-coated wound dressings

As a consequence:

- Importantly, since the mechanism of antibacterial action is of physical binding and removal, there is no risk of bacteria developing resistance.[33]

- There is no evidence of wound systemic absorption of DACC™-coated dressings components. DACC™-coated dressings also have low risk of local reactions and/or allergies.[34]

- The lack of bacteriolysis prevents endotoxin release to the wound bed.[32,35]

Several reviews have described the scientific and clinical evidence to support DACC™-coated wound dressings in the management and prevention of wound infection[36] and their role in supporting AMS strategies.[37]

Laboratory Studies

Binding Bacteria

When microorganisms (e.g., Staphylococcus aureus, Pseudomonas aeruginosa and Clostridium difficile) come into close contact with wound contact layer utilising Sorbact® Technology, they become irreversible bound.[35,38,39] It has been demonstrated that this occurs with a sustained binding effcet[40] and with counts remaining stable during a period of 20 hours indicating growth inhibition.[32] The ability of DACC™-coated wound dressings (Cutimed® Sorbact® and Leukomed® Sorbact®) to irreversibly bind microorganisms offers a safe and effective method for clinicians to reduce bacterial load within the wound, this method may reduce the use of antibiotics and promote wound healing.[41] It has been shown that a significant percentage of chronic wounds are populated by biofilms which contribute to a delay in healing.[42,43] These biofilms, once established, are difficult to remove because of their firm attachment to the underlying tissue and their resistance to antimicrobials.[44,45] Additionally, a recent study confirmed the presence of bacteria on the DACC™-coated fibres of the wound dressing (using SEM photomicrograph techniques) and demonstrated predominant interactions between bacterial adhesion proteins and the DACC™ surface.[32] Importantly, a significant antimicrobial activity against Staphylococcus aureus and Pseudomonas aeruginosa was observed. The authors concluded that this could explain the reduced bioburden and improved wound healing found in clinical practice with DACC™-coated wound dressing.[32] Table 1 summarizes the laboratory studies showing microorganism binding to DACC™-coated materials.

WHO Pathogens

An ever-increasing number of resistant pathogens have been identified that are seen to be of great importance by WHO, (Figure 1) some of which cause infections in wound.[16,46] It is noteworthy that a recent review identified that about 70% of bacteria that cause wound infections are resistant one of the most used antibiotics. This underlines the necessity to investigate alternate strategies for preventing/treating wound infections.[47] Importantly the development and use of new/alternate strategies must be evidence based. This is exemplified in an experimental study that was undertaken to evaluate the antimicrobial effect of a DACC™-coated wound dressing against some of the WHO pathogens (e.g., Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus faecium, Enterobacter cloacae or Acinetobacter baumannii). The results showed that the DACC™-coated wound dressing was able to inhibit the growth of all important WHO pathogens tested. The dressing was found to exert its antibacterial effect by binding the microorganisms to the fibres and inhibiting their growth.[32]

Clinical evidence

Surgical site infections (SSIs) have been identified as the third most common healthcare-associated infection in the UK (after pneumonia and urinary tract infection) and are associated with considerable morbidity, mortality, and costs with an incidence of as high as 36%.[48] There are a number of surgical wounds that are at high risk of SSI wherein DACC™-coated wound dressings (Leukomed® Sorbact® and Cutimed® Sorbact®) have been used to successfully prevent/treat infection. Examples of studies supporting the use of these dressings are for example in cesarean surgery,[49-51] vascular surgery,[52] skin grafting,[53,54] umbilical cord care,[55] burns.[56-58]
Additionally chronic wounds are highly susceptible to infection[59] and there is evidence that supports the use of DACC™-coated wound dressings (Cutimed® Sorbact®) in for example leg ulcers,[60-64] pressure ulcers[65] and diabetic foot ulcers.[64,66] Table 2 (see Appendix) summarizes the key clinical studies supportive of DACC™-coated dressings in treating and preventing infection.
Figure 4 summarizes schematically the mode of action of DACC™-coated materials.

Table 1. Attachment of microorganisms to DACC-coated materials in in vitro studies	
Planktonic	
Acinetobacter baumannii*	Husmark et al, 2022[32]
Bacteroides fragilis	Ljungh et al, 2006[40]
Candida albicans	Ljungh et al, 2006[40]
Clostridium difficile	Hastings, 2009[39]
Enterobacter cloacae (ESBL)*	Husmark et al, 2022[32]
Enterococcus faecalis	Ljungh et al, 2006[40]
Enterococcus faecium (VRE)*	Husmark et al, 2022[32]
Fusobacterium nucleatum	Ljungh et al, 2006[40]
MRSA*	Ronner et al, 2014[67]; Husmark et al, 2022[32]
Mycobacterium ulcerans	Geroult et al, 2014[68]
Pseudomonas aeruginosa*	Ljungh et al, 2006[40]; Husmark et al, 2022[32]; Bowler et al, 1999[38]
Pseudomonas aeruginosa (ESBL)*	Husmark et al, 2022[32]
Staphylococcus aureus	Ljungh et al, 2006[40]; Ronner et al, 2014[67]; Hastings, 2009[39]; Bowler et al, 1999[38]; Geroult et al, 2014[68]
Biofilm	
MRSA*	Cooper and Jenkins, 2016[44]
Pseudomonas aeruginosa*	Cooper and Jenkins, 2016[44]

Notes:
* WHO-priority pathogens.
MRSA: methicillin-resistant Staphylococcus aureus; ESBL: extended-spectrum beta-lactamase;
VRE: vancomycin-resistant Enterococcus

National Institute for Health and Care Excellence Guidance

It is important to note that a recent National Institute for Health and Care Excellence (NICE) Guidance Leukomed® Sorbact® for preventing surgical site infection medical technologies guidance" [MTG55] published in February 2021 stated the following recommendations:

• Evidence supports the case for adopting Leukomed® Sorbact® (DACC™-coated wound dressing) for closed surgical wounds after caesarean section and vascular surgery.

• Leukomed® Sorbact® should be considered as an option for people with wounds that are expected to have low to moderate exudate after caesarean section and vascular surgery.
It should be used as part of usual measures to help reduce the risk of surgical site infection. More evidence is needed on the use of Leukomed® Sorbact® on wounds after other types of surgery.

• Cost modelling shows that the reduced rate of surgical site infection with Leukomed® Sorbact® compared with standard surgical dressings leads to savings of-

- £107 per person after caesarean section
- £18 per person after vascular surgery

• By adopting this technology, the NHS may save up to £5.3 million per year for caesare an section and up to £1.2 million per year for vascular surgery. Cost savings are expected because fewer people will need to stay in hospital for treatment of surgical site infection.

- Laboratory studies have shown that DACC™-coated wound dressings (Cutimed® Sorbact® and Leukomed® Sorbact®) are able to sequester and retain bacteria within their matrix.
- Clinical studies have shown that DACC™-coated wound dressings (Cutimed ® Sorbact® and Leukomed® Sorbact®) have been used successfully to prevent and treat infection.
- National Institute for Health and Care Excellence recommendations support the case for adopting Leukomed® Sorbact® for closed surgical wounds after caesarean section.

Part 3:
AMS in wound care – Aligning the use of DACC™-coated wound dressings with the principles of AMS to provide a practical solution to AMR

Antimicrobial resistance in Wounds

It is noteworthy that in most cases, antibiotics are inappropriate and ineffective in chronic wound infections and associated overuse exacerbates antibiotic resistance on a global scale.[69] AMR affects wound management procedures as wounds can be a conduit for infection, allowing unconstrained entry of microorganisms – including antimicrobial resistant bacteria – into tissues. The British Society for Antimicrobial Chemotherapy, in a review of AMR, have identified ten steps that can be adopted to tackle AMR (see Table 3).

Table 3. Tackling AMR on ten fronts (adapted from Nathwani, 2018[70])

1	Increase public awareness
2	Improve sanitation and hygiene
3	Reduce antibiotic use in agriculture and the environment
4	Use vaccines and alternatives (to antimicrobials)
5	Rapid diagnostics
6	Increase surveillance of infections
7	Human capital
8	Drug development
9	Global Innovation Fund
10	International collaboration for action

The challenges of AMS in wound care have been highlighted identifying as the main aim:[71]

„to reduce inappropriate use of antimicrobials by promoting, facilitating, and teaching good antimicrobial practice“

AMS in Wound Care

The continued emergence of AMR has compromised the efficacy of antimicrobials in the treatment of wound infection[72] and the report of a pan-resistant strain of Klebsiella pneumoniae causing a fatal wound infection in 2016 is significant for future wound care.[73] AMS combined with infection prevention comprises a collaborative, multidisciplinary approach to optimize the use of antimicrobials such as antibiotics.[71,74] Optimizing the use of biocidal agents has also been proposed as an AMS initiative to reduce risk of bacterial resistance and cross-resistance to antibiotics.[75] As an example, reducing the use of a low concentration chlorhexidine solution (500 mg/L) for dressings on burn wounds may have caused an increase the susceptibility of wound isolates.[76]

In addition to antibiotics used in treating infection, effective wound management today relies on non-antibiotic antimicrobial agents employed in hand hygiene, the cleaning and decontamination of environmental surfaces and medical equipment, the decolonization of MDR strains from patients and healthcare practitioners, pre-operative skin disinfection and the appropriate use of antimicrobial dressings.[72]

AMS is rapidly becoming embedded within the specialist area of wound management. The British Society for Antimicrobial Chemotherapy and European Wound Management Association (EWMA) position paper concludes that applying AMS principles to the care of patients with wounds should help to reduce the unnecessary use of systemic or topical antibiotic therapy and ensure the safest and most clinically effective therapy for infected wounds (see Table 3 for key AMS actions).[71]

Strategies to Manage AMS in Wound Care

It is noteworthy that AMS does not decry the use of antimicrobials, but that there is a requirement to first undertake a correct wound assessment. This is because misdiagnosis is a key element in obviating AMS and this primarily to accurate recognition of whether a wound is infected or not. This remains a major challenge and therefore, the problem in recognising infection leads to Good Practice or Poor Practice (inappropriate use of antimicrobials).

AMS Good Practice in Wound Care

An important aspect of AMS is the ability to accurately diagnosis the underlying disease/reason for the wound and recognising where local symptoms are due to poor wound management and the need for appropriate treatment of the underlying wound aetiology rather than reaching for the oral antibiotic. Additionally, clinicians need to think about not only how high is the risk that this patient will develop an infection, but more importantly, what preventative strategies can be put in place early on within a pathway to reduce the risk of infection.[33]

AMS Poor Practice in Wound Care

Poor practice in AMS may occur, and antibiotics may be prescribed as a first line of treatment for several reasons including patient concerns that are escalated from one practitioner to another, increasing wound malodour, increasing pain, increasing wound size, increasing redness. As an example, antimicrobial use is often used as a first line attack approach for the patient. If a change in a patient's condition requires an escalation from one practitioner to another, the prescribing of antibiotics can be a simple way of dealing with that escalation: it's an obvious way for a patient to perceive an active intervention regardless of the treatment's relevance.[77] Oral antibiotics may also be prescribed if the wound shows any increase in odour, pain, wound size, or redness where local topical antimicrobial treatment may be the more appropriate course of action.[33]

Respond to the rise of antimicrobial resistance with DACC™-coated wound dressings (Cutimed® Sorbact® and Leukomed® Sorbact®)

In terms of selective targeting of bacteria, several antimicrobial agents have been incorporated into different dressing types.[78] Common antiseptics, such as silver, iodine and PHMB can provide effective anti-bacterial action across a broad range of wound pathogens and there is an increasing body of in vitro evidence in support of their use.[79-81] In contrast however, there are wound dressings that do not contain active agents, but that act by binding bacteria to prevent/ reduce wound infection. They do this by reducing the local bioburden of a wound via the physical uptake and sequestration of bacterial and retention and inhibition within the matrix of the wound dressing allows removal of bacteria.[83]

- AMR is a recognised challenge in wound care.
- AMR is rapidly becoming embedded within the specialist area of wound management.
- AMS starts with good clinical knowledge, good infection/prevention strategies targeted specifically to the wound bed, together with the ability to recognise when antibiotics are required, and to have the confidence to recognise when antibiotics are not needed.
- DACC™-coated wound dressings may lower the use of antibiotics and can support your AMS strategy.

Therefore, wound dressings (based on Sorbact® Technology) use physical methods (e.g., physical binding – see Part 2) to effect antimicrobial action for infection management are an ideal solution to AMR and should be aligned with AMS initiatives. Some wound dressings work via a mechanism that promotes the binding and physical uptake, sequestration, and removal of intact microorganisms from the wound bed (as in the case of a wound dressing based on Sorbact® Technology to successfully prevent/ reduce infection). As such, they provide a valuable tool that aligns with the requirements of AMS (e.g., reducing the use of antimicrobials/ antibiotics in wound treatment regimens) by effectively reducing wound bioburden without inducing/selecting for resistant bacteria.

Concluding Remarks

- AMR is becoming one of the most significant healthcare challenges of the 21st Century, with an estimated 10 million deaths by 2050.
- AMS has been developed as a strategy to combat the rise in AMR.
- New antimicrobials (e.g., antibiotics) are required to be developed to treat the high-risk resistant pathogens as described by WHO
- DACC™-coated wound dressings (Cutimed® Sorbact® and Leukomed® Sorbact®) can be used to prevent or treat wound infection. There is a considerable amount of experimental and clinical evidence that supports the use of these wound dressings.
- DACC™-coated wound dressings (Cutimed® Sorbact® and Leukomed® Sorbact®) are effective against the top five antibiotic-resistant microbes such as MRSA and is not linked to any risk of development of resistant strains of microorganisms from use.
- Not inducing resistance in any microorganisms, DACC™-coated wound dressings (Cutimed® Sorbact® and Leukomed® Sorbact®) can be used as part of an AMS aligned wound infection prevention/ treatment regimen.

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