PrescQIPP Community Interest Company

Wound care - Antimicrobial dressings (silver excluded)

Over £7.3million is spent annually on all antimicrobial dressings (excluding silver dressings) in England (ePACT May to July 15). See separate PrescQIPP bulletin on silver dressings available at http://www.prescqipp.info/silver-dressings/viewcategory/212. QIPP projects in this area focus on reducing inappropriate prescribing of antimicrobial dressings, whilst still maintaining high standards of wound care in line with national guidance.

Recommendations

- Review the prescribing of antimicrobial dressings, ensuring appropriate use according to local wound dressings formulary.
- At present there is no robust clinical or cost-effectiveness evidence to support the use of antimicrobial dressings (e.g. honey, iodine, or silver) rather than non-medicated dressings for the prevention or treatment of chronic wounds.[1]
- Review patient suitability for switching to standard dressings (non-medicated), if no wound infection is present.
- If an antimicrobial dressing is required, prescribe the lowest acquisition cost dressing. It must have sufficient properties to deal with the characteristics of the wound.[1,2]
- Only use antimicrobial products where an increased risk of infections are apparent. Avoid indiscriminate use because of concerns over bacterial resistance and toxicity.[1,2]
- If the infection is spreading (not localised to the wound) treatment with systemic antibacterials may be required.[3]
- Prescribe antimicrobial dressings for the shortest time required (generally one to two weeks) and review regularly.[1,2]
- Prescribe the minimum quantity of dressings sufficient to meet the patient's needs, to reduce avoidable wastage and prevent stockpiling.[2] Order the exact quantity required (rather than complete boxes) and do not put on repeat.[1]

Background

Approximately 200,000 individuals in the UK have a chronic wound at any one time. These are mostly leg ulcers, pressure ulcers and diabetic foot ulcers. A report in 2007 estimated the direct cost to the NHS of caring for patients with chronic wounds at around £2-3 billion per year.[4] The costs of all dressings prescribing on FP10 to the NHS is currently over £170 million per year (ePACT full year data to March 2015). This equates to approximately 3% of the total NHS budget.[1] Some patients may have wounds that do not heal for years, so there is a high adverse effect on quality of life. Wound pain, exudate, odour, dressings changes-related pain, a lack of mobility and sleep deprivation can all contribute to an inability to participate in normal activities and lead to social isolation. Many chronic wounds are preventable and many will heal within 24 weeks with appropriate diagnosis and treatment.[5] Effective, timely diagnosis and appropriate treatment with active measures to avoid wound complications and hospitalisation, can

have a major positive impact on both costs and patient quality of life.[4]

A 2010 MeReC review stated that antimicrobial dressings account for about a quarter of all dressings prescribed in primary care in England. The authors calculated that iodine dressings accounted for 11.5% of total prescribed items and 3.2% of total costs at that time. Also honey dressings accounted for 1.8% of total prescribed items and 1.3% of total costs. (Silver dressings accounted for the balance of total items prescribed.)[4] ePACT data (May to July 2015) extrapolated shows that current annual spend on honey dressings is over £1.6 million, £2.9 million on iodine dressings and £2.7 million on other antimicrobial dressings (excluding silver dressings).

National guidance

In view of the multitude of dressings available, the absence of specific advice in national guidelines and recognising financial constraints, local formularies provide a means of rationalising choice of dressings.[4] Most primary care and acute trusts issue their own regional wound care management and formulary guidelines.[6]

Wounds UK state that a wound dressing formulary is a clinical and financial necessity in their Best Practice Statement (2008).[7] The development and maintenance of such a formulary is the responsibility of every NHS Trust. (This Best Practice Statement was published before the latest NHS reforms in 2013. So the term NHS Trust could extend beyond secondary care to include other trusts, such as community healthcare trusts now). The use of dressings needs to be stringently regulated so that only appropriate clinically and cost-effective dressing are used, with an agreed audit cycle. The wound dressings formulary should be developed by multidisciplinary teams, using a fair and impartial process and avoiding undue influence from manufacturers. A formulary should include a range of clinically and cost-effective products, to serve patient wound requirements. It should be reviewed regularly. It should also be a dynamic document, changing according to the emergence of new wound dressings which may supercede current dressings. Alternatively, if a wound dressing appears to be ineffective, then the multidisciplinary team should review this in accordance with local processes. This must be balanced with unnecessary change and recognising the need for education to underpin the use of wound dressings to ensure their appropriate use. If inappropriate practice regarding wound dressings is identified by audit, training should be implemented to ensure a standard of wound management practice. If a commonly used wound dressing emerges from the audit, but has little supporting evidence, its use should be evaluated. The multidisciplinary team should reach agreement regarding the levels of evidence that are acceptable and relevant, e.g. randomised controlled trials (RCTs) where possible, cohort studies or case series reports.[7]

There are a few published NICE clinical guidelines relating to this area. Although these guidelines give important recommendations about wound care, they do not make recommendations on specific products. They are as follows;

- Diabetic foot problems: prevention and management (NG19, published August 2015),
- Prevention and management of pressure ulcers (CG179, April 2014 next review update June 2016),
- Surgical site infection (CG74, October 2008, next review date December 2016).

All antimicrobial dressings

The National Institute for Health and Care Excellence (NICE) Key Therapeutic Topics on wound care products (KTT14, January 2015), summarises the evidence in the area of wound care products, which has been identified to support Medicines Optimisation. It is not formal NICE guidance, but options for local implementation are as follows:[2]

- Review and if appropriate revise prescribing of wound dressings to ensure least costly dressings meeting the required clinical performance characteristics are routinely chosen.
- Do not routinely choose antimicrobial dressings (for example honey, iodine or silver) ahead of non-medicated dressings.

- Antimicrobial dressings may be considered to help reduce bacterial numbers in wounds, but should be avoided unless the wound is infected or there is a clinical risk of the wound becoming infected.
- Antimicrobial dressings should only be prescribed for defined short periods of time and their use reviewed regularly.
- The frequency of dressing change should be appropriate for the wound and dressing type.
- Wound care products are sometimes prescribed in large quantities to people for use on an as-needed basis. Prescribe minimum quantity of dressings necessary to meet people's needs to reduce avoidable wastage.
- Healthcare professionals making visits to people with chronic wounds should monitor supplies to prevent stockpiling.

The 2010 MeReC review states that clinically uninfected wounds healing as expected do not require topical or systemic antimicrobials. However clinically infected wounds usually require systemic antibiotic therapy. Topical antimicrobial dressings may also be appropriate. Early recognition of infection and intervention in chronic wounds to avoid complications is important. This is particularly the case for diabetic ulcers. There is controversy over how to define wound infection, whether microbiological studies are useful. Also how to treat poorly healing wounds with 'secondary' signs of local infection (e.g. nonpurulent exudation, discoloured or friable granulation tissue breakdown or 'pocketing' at the wound base, or an abnormally foul odour).[4]

The British National Formulary (BNF) states in section A5.3 antimicrobial dressings, that spreading infection at the wound site requires treatment with systemic antibacterials. For local wound infection, a topical antimicrobial dressing may be used to reduce the level of bacteria at the wound surface but will not eliminate a spreading infection. Some dressings are designed to release the antimicrobial into the wound, others act upon the bacteria after absorption from the wound. The amount of exudate present and the level of infection should be taken into account when selecting an antimicrobial dressing.[3]

Medical grade honey (BNF section A5.3.1)

Medical grade honey (BNF section A5.3.1) has antimicrobial and anti-inflammatory properties and can be used for acute or chronic wounds. Medical grade honey has osmotic properties, producing an environment that promotes autolytic debridement. It can help control wound malodour. Honey dressings should not be used on patients with extreme sensitivity to honey, bee stings or bee products. Patients with diabetes should be monitored for changes in blood-glucose concentrations during treatment with topical honey or honey-impregnated dressings.[3]

Iodine-impregnated dressings (BNF section A5.3.2)

Iodine-impregnated dressings (BNF section A5.3.2) can be used to treat clinically infected wounds. Cadexomer-iodine, like povidone-iodine, releases free iodine when exposed to wound exudate. The free iodine acts as an antiseptic on the wound surface, the cadexomer absorbs wound exudate and encourages de-sloughing. Two-component hydrogel dressings (Iodozyme®, Oxyzyme®) containing glucose oxidase and iodide ions generate a low level of free iodine in the presence of moisture and oxygen. Povidone-iodine fabric dressing is a knitted viscose dressing with povidone-iodine incorporated in a hydrophilic polyethylene glycol basis. This facilitates diffusion of the iodine into the wound and permits removal of the dressing by irrigation. The iodine has a wide spectrum of antimicrobial activity but it is rapidly deactivated by wound exudate. Systemic absorption of iodine may occur, particularly from large wounds of with prolonged use.[3]

Other antimicrobial dressings (BNF section A5.3.4)

Other antimicrobial dressings (BNF section A5.3.4) such as polihexanide (polyhexamethylene biguanide) or dialkylcarbamoyl choride are available for use on infected wounds. Although hypersensitivity is unlikely with chlorhexidine impregnated tulle dressing, the antibacterial efficacy of these dressings has not been established.[3]

No one particular product is suitable for the management of all types of wound. Few are suitable for the treatment of a single wound during all stages of healing. So a flexible approach to the selection of wound care is required to optimise the healing process.[1] It also requires careful clinical assessment of the patient's wound, their clinical condition, comorbidities and personal circumstances and preferences.[4] In the absence of any robust clinical evidence to guide choice, prescribers should routinely choose the dressing with the lowest acquisition cost with performance characteristics appropriate for the wound and its stage of healing.[1,2] This includes size, adhesion, conformability, and fluid-handling properties for example.[4] Although laboratory characterisation tests provide a means of comparing their performance, they cannot always predict how the dressings will perform in the clinical situation.[2]

Clinical effectiveness

All antimicrobial dressings

NICE KTT14 (January 2015) on wound care products states that at present there is no robust clinical or cost-effectiveness evidence to support the use of antimicrobial dressings (for example honey, iodine or silver) over non-medicated dressings for preventing or treating chronic wounds. Indiscriminate use should be discouraged because of concerns over bacterial resistance and toxicity.[2] Antimicrobial products should only be used where an increased risk of infections are apparent. Antimicrobial dressings should be used for the shortest time required (generally one to two weeks) and their use should be reviewed regularly. Order the exact quantity required (rather than complete boxes) and do not put on repeat.[1] Long term use should be avoided and dressings should be discontinued when signs of infection resolve, when the wound starts to heal or if the patient experiences adverse effects from the antimicrobial.[4]

A Canadian Agency for Drugs and Technologies in Health (CADTH) Rapid Response Report (September 2014) investigated five research questions. The two most applicable research questions to this bulletin were:[8]

- What is the clinical effectiveness of antimicrobial dressing application on both infected and non-infected venous leg ulcers?
- What are the evidence-based guidelines regarding use of topical antimicrobials and antimicrobial dressings for the management of venous leg ulcers?

This Rapid Response Report summarised that overall findings from the systematic reviews, randomised controlled trials, and non-randomised studies varied by antimicrobial therapy used and by comparator group; thus the use of certain antimicrobial dressings in the treatment of venous leg ulcers remains unclear.[8]

In the CADTH Rapid Response Report, the authors of one systematic review (37 studies) concluded that healing of chronic venous leg ulcers may be improved with some antimicrobial dressings when compared to compression alone. However, this was based on limited poor-quality literature. Authors of another systematic review (60 studies) concluded that advanced dressings, including those with antimicrobials did not provide more effective wound healing when compared to simple dressings.[8]

A Health Technology Assessment: Antimicrobial Wound Dressings (AWDs) in Chronic Wounds, is due for publication October-November 2015, by Health Improvement Scotland, scoping the following research questions:

- What is the clinical and cost-effectiveness of different antimicrobial dressings compared to other dressings and techniques for treating localised wound infection in chronic wounds?
- What are the patient and organisational issues associated with the use of different antimicrobial dressings in patients with chronic wounds?

They state in 'Additional Information' on the Interactive antimicrobial wound management products webpage (beneath the sections on Flash reports and Research question): there are potential improvements available in terms of quality and safety of care to the patient through reduced infection

rate and appropriate use of products. These outcomes would allow health resource personnel and dressing costs to be used more appropriately. Alternatives include a focus on preparing the wound bed for healing by removal of barriers to healing, such as slough and necrosis.[9]

Honey dressings

A Cochrane systematic review (Jull et al, 2015) investigated honey as a topical treatment for wounds. The authors found 26 eligible trials, where honey was compared with many different treatments. The differences in wound types and comparators make it impossible to draw overall conclusions about the effects of honey on wound healing. The evidence for most comparisons is low or very low quality. This was largely due to problems with the design of studies which made the results unreliable. Also for many outcomes only a small amount of information was available. In some cases the results of the studies varied considerably. There is some high quality evidence (2 trials, n=992) that honey heals partial thickness burns around 4 to 5 days more quickly than conventional dressings, but it is unclear if there is a difference in rates of adverse events (very low quality evidence) or infection (low quality evidence). There is moderate quality evidence that honey is more effective than antiseptic followed by gauze for healing wounds infected after surgical operations. It is not clear if honey is better or worse than other treatments for burns, mixed acute and chronic wounds, pressure ulcers, Fournier's gangrene, venous leg ulcers, minor acute wounds, diabetic foot ulcers and Leishmaniasis, as most of the evidence that exists is of low or very low quality.[10]

The Department of Health Buyer's guide: advanced wound dressings states that in a study of burns and other specified wounds, honey was found to be superior to 'conventional and unconventional' treatments for a number of outcomes including wound healing, sterility and eradication of infection.[6]

Wound care specialists from Guys and St Thomas' (GSTT) Community Health Service produced 'Top Tips QIPP messages for prescribing dressings' (Sept 2013) which apply only when FP10 is the route of supply. They suggest if honey is needed, use dressings impregnated with honey for shallow wounds as this is less messy and easier to use and maintains the concentrations needed. Liquid honey is best reserved for deeper wounds. An alginate dressing permeated with honey can hold more exudate than a tulle honey dressing. They advise using cost effective products such as Activon Medical Grade Manuka Honey, Algivon® (alginate), Activon Tulle® (knitted viscose).[11]

Iodine dressings

The 2010 MeRec Review states there is some evidence that cadexomer-iodine used under compression, may be effective in improving the healing of venous leg ulcers.[4]

In the CADTH Rapid Response Report, authors of one of the systematic reviews (45 RCTs) conclude that the use of cadexomer-iodine was supported by some evidence but antimicrobials should only be used in cases with clinical infection. The Rapid Response Report found insufficient evidence to produce recommendations regarding the use of cadexomer-iodine or povidone-iodine in one of the evidence-based guidelines found. The other guideline states that use of cadexomer-iodine may be considered as alternatives to other topical antimicrobials. It recommends that topical antimicrobial therapy may be appropriate for superficial infections, provided that therapy is culture-guided.[8]

A Cochrane systematic review (Dumville et al, 2013) investigated hydrocolloid dressings for healing diabetic foot ulcers (present for at least 6 weeks). In one robust study (2009) with a 24-week follow-up, one comparison between alternative advanced dressings involved iodine-impregnated dressing (Inadine) compared with fibrous hydrocolloid (Aquacel) dressing (n=211). The primary outcome was ulcer healing. There was no statistically significant difference in the number of ulcers healed in the iodine-impregnated dressing group, compared with the fibrous-hydrocolloid group. There was no difference in quality of life (disease-specific and generic) between the groups. The trialists also conducted a detailed cost-effectivness analysis and concluded that the costs of using fibrous hydrocolloid and an iodine-impregnated dressing were similar and did not find that treatment with advanced wound management dressings reduced the number of clinic visits. There did not appear to be any difference in the number of adverse events, or ulcer recurrence between the groups. The trial was of adequate statistical power and

good methodological quality.[12]

A NICE Medtech Innovation briefing (MIB11, Nov 2014) assessed the evidence for Oxyzyme® and Iodozyme® 2-layer hydrogel wound dressings with iodine, for treating chronic wounds. It found one RCT (n=100) which reported no significant difference in wound healing outcomes at 12 weeks between Oxyzyme® or Iodzyme® dressings and standard care. There was no formal power calculation, so statistical non-significance could be caused by an insufficient sample size.[5] NICE MIB11 discusses that the two components of these dressings must be placed on the wound in the correct order to release iodine. They must also be covered with an air-permeable dressing (a common requirement for hydrogel dressings). The first layer is placed directly on the wound and contains glucose and potassium iodide. The second layer, containing glucose oxidase is placed on top of the first. Atmospheric oxygen diffuses into the outer second layer, producing hydrogen peroxide. This diffuses into the first layer producing molecular iodine and the antimicrobial effect. The Oxyzyme® dressing is normally used for non-infected wounds. The Iodozyme® dressing releases a concentration of iodine approximately five times higher than Oxyzyme® and is normally used for infected wounds. These dressings may be used on moderately exuding, non-exuding or dry wounds and under compression therapy. The typical frequency of dressing changes is two to three times per week, but will vary according to patient needs. Prescribing of Oxyzyme® or Iodozyme® may need approval from a specialist such as a Tissue Viability Nurse (TVN) or a wound clinic, due to a higher acquisition cost than many other dressings used for hard-to-heal wounds. Any resource saving would be from a reduced duration of wound treatment or reduced frequency of dressings changes.[5] Oxyzyme® is used on non-infected wounds, so this puts a question mark over its place in therapy, particularly in relation to its high acquisition costs.

Top Tips QIPP messages advises that the antimicrobial effect from one iodine dressing may not last long enough and require up to four layers of dressings. So it is best to use iodine-cadexomer ointment or paste and cover with a soft polymer, silicone, low adherence dressing (Mepitel®), so that iodine can stay on the wound for as long as needed.[11]

Costs

Chart 1, on the following page, shows a cost comparison of all honey dressings (sheet dressings plus medical grade topical honey).[3,13] This is per dressing for the smallest size available in each range, rather than cost for all sizes for practicality purposes, due to the large numbers of dressings involved. Dressings should be chosen according to individual wound characteristics and manufacturer recommendations, in addition to cost considerations. Chart 2 on the following page shows a cost comparison of iodine dressings (smallest dressing size). Chart 3, on the following page, shows a cost comparison of other antimicrobial dressings, polihexanide or dialkylcarbamoyl chloride (again smallest dressing sizes). Also check the Drug Tariff, Part IXA Wound Management Dressings, for current prices and whether products can be prescribed on FP10 at www.ppa.org.uk/ppa/edt_intro.htm

Chart 1. Cost comparison of honey dressings (sheet and topical)[3,13]

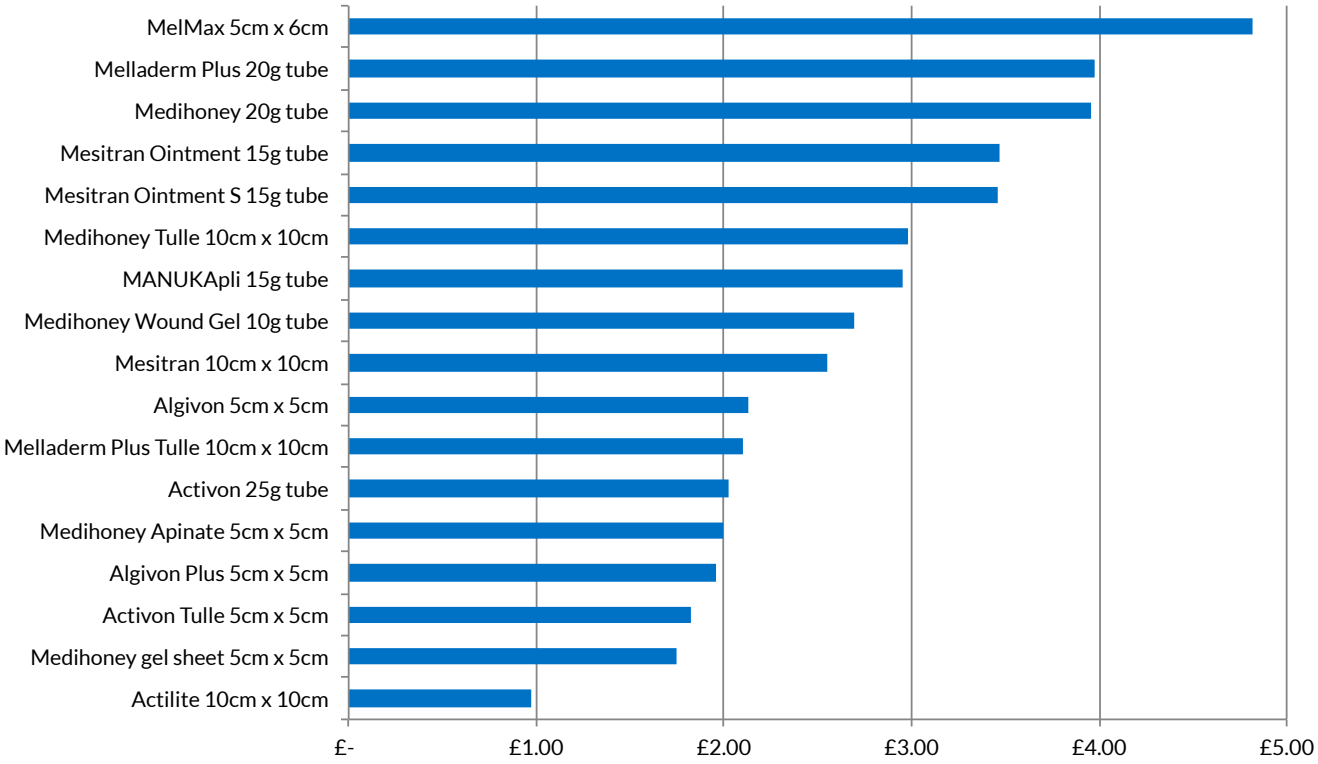


Chart 2. Cost comparison of iodine dressings[3,13]

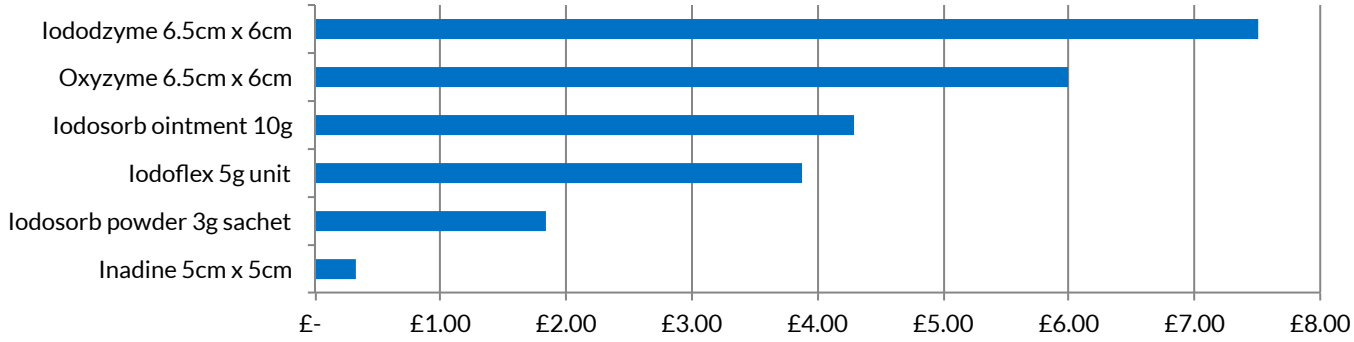
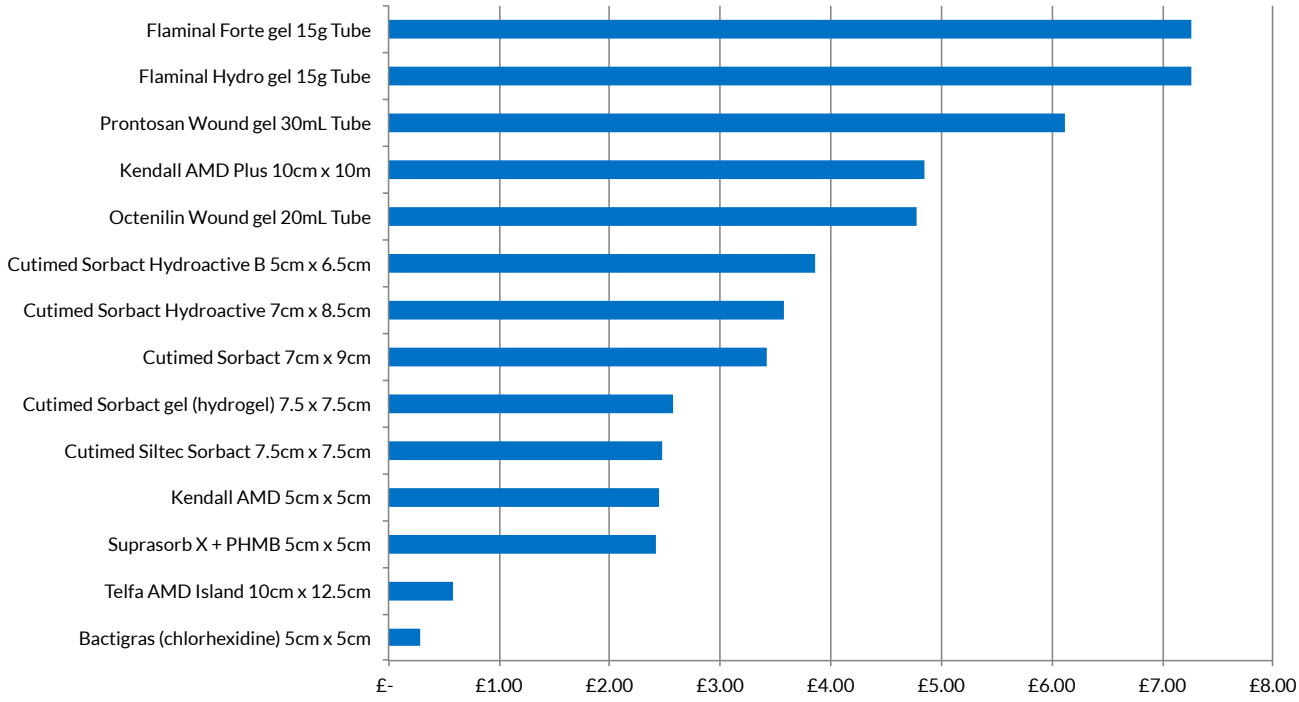


Chart 3. Cost comparison of other antimicrobial dressings[3,13]



Over £7.3 million is spent annually on antimicrobial dressings (excluding silver) in England (ePACT May to July 2015). Of this, over £1.6 million is spent on honey dressings, £2.9 million on iodine dressings and £2.7 million on other antimicrobial dressings (excluding silver dressings).

The proportion of prescriptions for more than ten dressings is 29% (range is between 7% and 75%). As antimicrobial dressings should be assessed regularly, a maximum of two weeks' supply should be prescribed.

Reducing the antimicrobial dressing prescribing discussed in this bulletin by 80% could release over £5.8 million in savings annually. This equates to £10,239 per 100,000 patients.

Summary

- Currently there is no robust clinical or cost-effectiveness evidence to support the use of antimicrobial dressings, rather than non-medicated dressings for the prevention or treatment of chronic wounds.[1] Assess patient suitability for switching to standard dressings (non-medicated), if no wound infection is present.
- Only use antimicrobial dressings where increased risk of infection is apparent.[1] Avoid indiscriminate use due to concerns over bacterial resistance and toxicity.[1,2] If the infection is spreading (not localised to the wound) treatment with systemic antibacterials may be required.[3]
- When required prescribe the lowest acquisition cost antimicrobial dressing. It must have sufficient properties to deal with the characteristics of the wound.[1,2] Ensure use complies with local wound dressings formulary. Prescribe the minimum quantity for the shortest time (generally one to two weeks) and review regularly,[1,2] to reduce avoidable wastage and prevent stockpiling.[2] Order the exact quantity required (not complete boxes) and do not put on repeat.[1]

References

1. Prescribing information to support QIPP: Wound Care (Section K). January 2013. Department of Medicines Management, School of Pharmacy, Keele University. http://centreformedicinesoptimisation.co.uk/download/e9f6bcc4b87355d54b1326fe37127760/Prescribing-Info-to-support-QIPP-EXAMPLE-Oct-12-.pdf Accessed 30.03.15
2. NICE Key Therapeutic Topics Wound care products (KTT14). January 2015. http://www.nice.org.uk/advice/ktt14 Accessed 19.03.15
3. Joint Formulary Committee. British National Formulary. 69th ed. London: BMJ Publishing Group and Royal Pharmaceutical Society. December 2013 update. Available via NICE BNF app (Appendix A5.3.3).
4. Evidence-based prescribing of advanced wound dressings for chronic wounds in primary care. MeReC Bulletin June 2010; 21(1):1-7 http://www.webarchive.org.uk/wayback/archive/20140627113109/_http://www.npc.nhs.uk/merec/therap/wound/merec_bulletin_vol21_no1.php Accessed 19.03.15
5. NICE Medtech Innovation Briefing (MIB11) Oxyzyme and Iodozyme 2-layer hydrogel wound dressings with iodine for chronic wounds. November 2014. www.nice.org.uk/advice/mib11 Accessed 27.03.15
6. Department for Health. Centre for Evidence-Based Purchasing, 2008. Report No. CEP08038. Buyer's guide: advanced wound dressings [online]. http://www.nhscep.useconnect.co.uk/CEPProducts/Catalogue.aspx Accessed 24.03.15
7. Wounds UK. Best Practice Statement: Development of a formulary. 2008. http://www.wounds-uk.com/ Accessed 25.03.15

8. Canadian Agency for Drugs and Technologies (CADTH). Topical antimicrobials and antimicrobial dressings for the management of venous leg ulcers: clinical effectiveness and guidelines. Rapid Response Report: Summary of Abstracts. Canadian Agency for Drugs and Technologies (CADTH). September 2014. https://www.cadth.ca/media/pdf/htis/dec-2014/RB0736%20Antimicrobial%20Dressings%20for%20VLU%20Final.pdf Accessed 28.03.15

9. Health Technology Assessment: Antimicrobial Wound Dressings (AWDs). February 2015 flash report. Healthcare Improvement Scotland. Accessed 27.03.15 and 08.07.15 http://www.healthcareimprovementscotland.org/our_work/technologies_and_medicines/shtg/shtg_work_programme/iawmp.aspx

10. Jull AB, Cullum N, Dumville JC, Westby MJ, Deshpande S, Walker N. Honey as a topical treatment for wounds (Intervention Review). Cochrane Database of Systetmatic Reviews 2015, Issue 3. Art No.: CD005083. DOI: 10.1002/14651858.CD005083.pub4.

11. Grier J, Hunter C, Oboh L. Top Tip QIPP messages for prescribing dressings. East & South East England Specialist Pharmacy Services. February 2013.

12. Dumville JC, Deshpande S, O'Meara S, Speak K. Hydrocolloid dressings for healing diabetic foot ulcers. Cochrane Database of Systematic Reviews 2013, Issue 8. Art No.:CD009099. DOI.10.1002/14651858. CD009099.pub3.

13. MIMS, March 2015 available via app. Haymarket Publishing, London.

Acknowledgement

NHS East & South East England Specialist Pharmacy Services. Thanks to Lelly Oboh, Consultant Pharmacist, Care of Older People at Guys and St Thomas Community Health Services for sharing her QIPP work on prescribing dressings, compiled with a TVN colleague.

Additional PrescQIPP resources

 Briefing

 Data pack

 Audit

Available here: https://www.prescqipp.info/resources/viewcategory/415-wound-care-antimicrobial-dressings

Information compiled by Sandra Hicks, PrescQIPP Programme, November 2015 and reviewed by Katie Taylor, Senior Medicines Evidence Reviewer, December 2015.

Non-subscriber publication March 2015.

This document represents the view of PrescQIPP at the time of publication, which was arrived at after careful consideration of the referenced evidence, and in accordance with PrescQIPP's quality assurance framework.

The use and application of this guidance does not override the individual responsibility of health and social care professionals to make decisions appropriate to local need and the circumstances of individual patients (in consultation with the patient and/or guardian or carer).