E.3. WOUND INFECTION TREATMENT

E.3.1 Introduction
All of the Wound dressing companies now have a variety of antimicrobial dressings on the market to help us treat local wound infections. There can be significant confusion regarding which product to pick. Should a wound with spreading infection that is being treated with systemic antibiotics also receive a topical application of antimicrobials to decrease the bacterial count on the wound surface? Should antiseptic solutions be used to cleanse? When is a topical antimicrobial dressing adequate without systemic antibiotic therapy? The following information has been adapted from a variety of sources, and is intended to be used as a resource for all health care settings within the South West LHIN.

E.3.2 Instructions for use – There are no charting tools to accompany this resource. Utilize the information to help guide informed choices when determining the treatment plan.

E.3.3 Use of Topical Antimicrobials and Antibiotics
Please refer to Section B.7.2 “Differentiating Between Local and Spreading Infection in Acute and Chronic Wounds” for the assessment indicators.

a. Dressing Selection
The dressing should be selected based on its ability regarding:
- Absorbency and ability to be used with highly exuding or low exuding wounds
- Conformability (the more that the dressing matches the contours and contacts with the wound surface, the better the antimicrobial effect)
- Odour and pain management
- Activity against the specific bacteria in the wound
- Sufficient levels of the agent to achieve bacterial kill as opposed to bacterial inhibition (and within what length of time?)
- Cytotoxicity (is the dressing likely to damage healthy cells?)
- Allergenicity (does the dressing contain any materials likely to cause sensitivity or allergy?)
- What the patient will tolerate (comfort)
- The cost of the dressing is countered by the ability to decreasing the nursing visits

b. Antimicrobial Treatment* Based on Level of Bacteria in Wound

*Please note: The antimicrobial dressings in Table 1 are listed in order of average price to the SWCCAC, from least cost (a) to highest cost (based on per unit pricing). This will be updated at such time that the South West Regional Wound Care Framework Product Selection/ Product Procurement Subcommittee comes to agreement on a common formulary for Acute Care and Community Care Access Centre wound care products. There will be opportunity for Long Term Care to participate in this as well. Please adapt this to the products that you currently use in your facility.
Table 1- Topical Treatment Options According to Microbial status of Wound

<table>
<thead>
<tr>
<th>Microbial Status of Wound Acute(\text{w}) and Chronic(\text{w}) (see Section B.7 for S&amp;S)</th>
<th>Systemic Antibiotics</th>
<th>Topical Treatment Options (Includes Products in SWCCAC Formulary and any Rx suggestions)(^{iv})</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Exudate to Low Exudate</td>
<td>Moderate to High Exudate</td>
<td></td>
</tr>
</tbody>
</table>
| Need for Prophylaxis- wounds in at-risk individuals can quickly progress to colonized or infected. | None required | 1. Optimize general health of individual (nutrition, medication, manage co-morbidities etc.)
2. Thorough cleansing, debridement if applicable, and infection control practices to prevent introduction of bacteria.
3. Utilize topical antimicrobial dressings:
   a) Inadine (SA# until Oct Catalogue version 22)\(^{v}\)(not for highly exudative wounds)
   b) AMD antimicrobial: packing strips, kerlix roll
   c) Aquacel Ag (may need to be pre-moistened)
   d) Acticoat Ag
   e) Iodosorb ung. care to be taken on bone or tendon which may be at risk of dehydration with lower exudate levels\(^{vi}\)
   f) Biatain Ag (Formerly Contreet)
   g) AMD antimicrobial transfer foam (may require a contact layer)
3. Choose a moisture retentive secondary dressing that provides a barrier to contamination. | 1. Optimize general health of individual (nutrition, medication, manage co-morbidities etc.)
2. Thorough cleansing, debridement if applicable, and infection control practices to prevent introduction of bacteria.
3. Utilize topical antimicrobial dressings:
   a) AMD antimicrobial: packing strips, kerlix roll
   b) Seasorb Ag ribbon packing
   c) Aquacel Ag
   d) Acticoat Ag
   e) Iodosorb (not for excessive exudate, care to be taken on bone or tendon which may be at risk of dehydration once exudate level reduces\(^{v}\))
   f) Biatain Ag (Formerly Contreet)
   g) AMD antimicrobial transfer foam
3. Choose absorbent, moisture retentive secondary dressing that provides a barrier to contamination. |
| Contaminated Bacteria on surface only. No signs or symptoms. | None required | 1. Thorough cleansing, debridement if applicable.
2. No antimicrobial action required
3. Choose absorbent, moisture retentive secondary dressing. | 1. Thorough cleansing, debridement if applicable.
2. No antimicrobial action required
3. Choose absorbent, moisture retentive secondary dressing. |
| Colonised Bacteria attached to surface, starting to form colonies but no local tissue damage | None required | 1. Thorough cleansing, debridement if applicable.
2. No antimicrobial action required
3. Choose absorbent, moisture retentive secondary dressing. | 1. Thorough cleansing, debridement if applicable.
2. No antimicrobial action required
3. Choose absorbent, moisture retentive secondary dressing. |
| Localized Infection (Critical Colonisation) Bacteria more deeply invasive, | None required | 1. Thorough cleansing, debridement if applicable
2. May use topical antimicrobials to cleanse (see section 10)
3. Utilize topical antimicrobial dressings: Same as for prophylaxis above. | 1. Thorough cleansing, debridement if applicable
2. May use topical antimicrobials to cleanse (see section 10)
3. Utilize topical antimicrobials: Same as for prophylaxis above. |
<table>
<thead>
<tr>
<th>Microbial Status of Wound</th>
<th>Systemic Antibiotics</th>
<th>Topical Treatment Options (Includes Products in SWCCAC Formulary and any Rx suggestions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute and Chronic (see Section B.7 for S&amp;S)</td>
<td></td>
<td><strong>No Exudate to Low Exudate</strong></td>
</tr>
<tr>
<td>local wound bed involved. Signs &amp; Symptoms as per acute or chronic localized infection in Section A. Infection confined to level of dermis, erythema &lt;2cms around wound margin.</td>
<td>Also-For Malodour: Flagyl Vaginal cream (requires Rx) 4. Choose a moisture-retentive secondary dressing.</td>
<td>4. Choose absorbent, moisture retentive secondary dressing.</td>
</tr>
<tr>
<td>Spreading Infection</td>
<td><strong>Systemic Antibiotics Required</strong></td>
<td>1. Thorough cleansing, debridement if applicable 2. May use topical antimicrobials to cleanse (see section E) 3. Utilize topical antimicrobial dressings: Same selection as for prophylaxis above. Also-For Malodour: Flagyl Vaginal cream (requires Rx) 4. Choose a moisture-retentive secondary dressing.</td>
</tr>
<tr>
<td>Bacteria now involve surrounding tissue</td>
<td><strong>Systemic Antibiotics Required</strong></td>
<td>1. Thorough cleansing, debridement if applicable 2. May use topical antimicrobials to cleanse (see section E) 3. Utilize topical antimicrobial dressings: Same as for spreading infection above. Also-For Malodour: Flagyl Vaginal cream (requires Rx) 4. Choose a moisture-retentive secondary dressing.)</td>
</tr>
</tbody>
</table>
c. Length of Use of Topical Antimicrobials and Antibiotics

The use of topical antibiotics (e.g. antibiotic creams or ointments) in the management of infected wounds should generally be avoided to minimize the risk of allergy and the emergence of bacterial resistance.\textsuperscript{1} Topical antimicrobial solutions and dressings (e.g. silver, iodine-based, polyhexamethylene biguanide or chlorhexidine) should be used based on the level of patient risk and the signs and symptoms of infection that are seen. Generally, they should be implemented in response to the clinical assessment, and discontinued when the signs and symptoms are resolved, reassessing at two-week intervals.\textsuperscript{*}

*TWO WEEK CHALLENGE\textsuperscript{\textit{ii}}: If there are clinical indications for use of an antimicrobial dressing, carry out a two week challenge. If the wound is progressing, but there are still signs of localized or spreading infection, continue for another two weeks. When the signs and symptoms are resolved, STOP the antimicrobial dressings. If patients are on antimicrobial dressings for longer than a four week period, review the dressing regimen and consider referral to appropriate clinical specialist e.g. ET, Nurse or Physician Wound Care Specialist, or Specialist Podiatrist for further discussion on management plan\textsuperscript{\textit{vii}}.

\begin{itemize}
\item \textbf{d. Thoughts on Biofilm}
\end{itemize}

Incidence

It is thought that about 60% of chronic wounds may be colonised with biofilm\textsuperscript{\textit{viii}}, \textsuperscript{\textit{ix}}, although there may be no physical symptoms other than delayed healing in spite of best practices for the type of wound. It is now also known that surgical site infections (SSI) also have a biofilm component\textsuperscript{\textit{x}}.

Definition

In the past, this situation was called “Critical Colonization”, but we now know that biofilms, which cannot be detected with routine swabs for culture and sensitivity, are the probable cause.\textsuperscript{\textit{xi}}

Signs

Biofilms are generally not visible on the surface of the wound, although an increase in slough or a gel-like or shiny coating on the wound may be noted.

Treatment

Physical removal of Biofilm by thorough and frequent debridement and/or wound cleansing is a key treatment strategy, forcing the biofilm to reconstruct and make it more susceptible to effective antimicrobials, antibiotics or antiseptics to prevent re-formation (debride-and-cover with antimicrobial dressing strategy. \textsuperscript{\textit{xii}})

\textsuperscript{\textit{i}} Fletcher, J. (2005). Best Practice - Choosing an appropriate antibacterial dressing. \textit{Nursing Times} 102(44): 46-..


