Nursing practice often involves undertaking procedures about which there is debate or uncertainty. In Practice Questions, we ask experts to determine how nurses should approach these situations.

If a wound is infected with anaerobic bacteria, are there specific dressings that should not be used?

Despite concerns that occlusive dressings may encourage anaerobic growth by providing an oxygen depleted environment, there is no evidence to support this.

**ANAEROBES**

Obligate anaerobic and microaerophilic bacteria live in oxygen free environments (Table 1). This has led to debate over the safety of the use of occlusive dressings, particularly hydrocolloids, for infected wounds (Finnie, 2002; Jones and Gill, 1998).

**CLASSIFYING INFECTION**

Wounds invariably have bacteria present, yet most are not infected. A wound is infected when “microbes multiply to such an extent that host tissue is invaded and wound healing is delayed” (Cooper, 2005).

To identify the causative pathogen, a microbiological sample needs to be taken, following standard operating procedures (Health Protection Agency, 2006). The primary objective for sampling is to determine sensitivity of the pathogen to antibiotics. When anaerobes are suspected or known to be a causative pathogen in wound infection, metronidazole is commonly the antibiotic of choice.

A pus/exudate sample is preferable to a wound swab because it usually provides more reliable results (HPA, 2006). The wound swab should use the Amies transport medium with charcoal (HPA, 2006). A wound swab because it usually provides more reliable results (HPA, 2006). The wound swab should use the Amies transport medium with charcoal (HPA, 2006).

**DRESSING SELECTION**

Occlusive dressings have provoked debate about their safe use because they create a hypoxic environment that encourages anaerobes to proliferate (Marshall et al, 1990). There has been no recent study of this, perhaps because the presence of anaerobic bacteria under these dressings neither raises the likelihood of infection developing nor delays healing (Mousa, 1997; Gilchrist and Reed, 1989). It may be that the slightly acidic environment beneath these dressings is hostile to bacteria, but this varies between products (Thomas and Loveless, 1997).

Dressing selection is based on many factors, including practicalities as well as wound type. A hydrocolloid does not have the absorptive capacity for high levels of exudate so more frequent dressing changes are required, without which complications such as peri-wound maceration could occur. This would preclude the use of this dressing type rather than the presence of anaerobes. The same could be said of hydrogel dressings, which have a high water content.

**CONCLUSION**

Selecting a dressing requires multiple considerations, too many for discussion here. Where a wound shows signs of clinical infection, anaerobic or not, selection of the dressing will likely be based on symptom management, wound site and patient lifestyle. Hydrocolloids and hydrogels should be used with caution, not because they may enhance infection but because they may be unsuitable for the wound conditions.

Heidi Guy, BSc, RN, is lecturer practitioner in tissue viability, East & North Hertfordshire NHS Trust/University of Hertfordshire

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**TABLE 1. BACTERIAL CLASSIFICATION**

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligate aerobes</td>
<td>Unable to survive without oxygen</td>
</tr>
<tr>
<td>Facultative anaerobes</td>
<td>Aerobic but can be anaerobic; prefer aerobic conditions</td>
</tr>
<tr>
<td>Microaerophilic bacteria</td>
<td>Can tolerate low amounts of oxygen</td>
</tr>
<tr>
<td>Obligate anaerobes</td>
<td>Unable to survive in oxygen, but may survive for a few days in air (Bowler et al, 2001)</td>
</tr>
</tbody>
</table>

Source: Gladwin and Trattler (2008)

**TABLE 2. SAMPLE INFORMATION**

- Site of wound
- Medical conditions, for example type 2 diabetes
- Deep cavity
- Undermining
- Malodour
- Bowel or “dirty” surgery
- Ischaemia
- Gangrene
- Devitalised tissue

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**REFERENCES**

Bowler PG et al (2001) Wound microbiology and associated approaches to wound management. *Clinical Microbiology Reviews*; 14: 2, 244-269.


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