

Section 10: Wound Infection

Infection is the invasion of living tissue by pathogenic micro-organisms. The presence of bacteria is normal and does not always indicate that a wound is infected. Patient factors such as immunosuppression, poor nutritional status, metabolic disease, ischaemia or presence of a foreign body may affect their ability to control bacterial load.

Type	Management Aims	Action	Treatment Options		Other Considerations
			1st Line	2nd Line	
Colonised Bacteria present in the wound with no detrimental effect	<ul style="list-style-type: none"> Prevent infection Consider debridement 	<ul style="list-style-type: none"> Do not swab Optimise wound healing with dressings. Debridement if necessary 	See WMF section according to wound type	See WMF section according to wound type	In some people signs and symptoms of infection may be masked eg diabetes, vascular, immunocompromised. Clinical judgement should be used to determine when antimicrobial dressings should be used.
Locally Infected Bacteria multiply, healing is disrupted and wound tissues are damaged. Localised erythema, increasing pain and/or exudate.	<ul style="list-style-type: none"> Treat the localised infection Prevent the spread of infection Prevent deterioration of wound 	<ul style="list-style-type: none"> Do not swab Select antimicrobial dressing Monitor wound progress. If no progress at 2 weeks, switch to alternative antimicrobial dressing. If partial response at 2 weeks continue for up to 4 weeks. Monitor for signs of spreading infection, see below. 	Cutimed Sorbact Flaminal Honey Iodine	Silver	When dealing with deep wounds it may be necessary to exclude osteomyelitis. Debridement The presence of slough and necrosis delays healing. Debridement can be achieved by selecting a dressing that debrides, e.g. hydrogel, honey, fibrous hydrocolloid. Other options for debridement are Debrisoft (following suitable trial of dressings that debride), Larvae therapy (specialist treatment) or sharp debridement (if suitably trained).
Spreading Infection Wound deteriorating: malodour with increasing erythema, pain & exudate.	<ul style="list-style-type: none"> Identify organism Treat the infection Prevent systemic infection 	<ul style="list-style-type: none"> Swab the wound and undertake NEWS monitoring for signs of systemic infection/sepsis Select antimicrobial dressing and consider empiric systemic antibiotics for 7 days Link to Antibiotic Guide Monitor regularly to ensure expected improvement Review systemic antibiotic when swab result available (for chronic wounds and ulcers be aware of likely colonisers Monitor wound progress and review wound management plan at 2 weeks. Antimicrobial dressings are not routinely continued beyond 4 weeks. 	Honey Iodine	Silver	Wound Swabs Wound swabs should only be taken for infection that is spreading or when systemic infection is suspected. Wounds should be cleansed as normal. The swab should be moved across the wound surface in a zig-zag motion, at the same time as being rotated between the fingers. Patient Information Chronic Wound Patient information leaflet is available to provide information to patients about how they can expect their wound to be managed and includes information about wound infection. Link to PIL (Staffnet link)
Systemic Infection Patient systemically unwell with raised temperature, HR, WBCs or CRP. Wound deteriorating: malodour with increasing erythema, pain & exudate.	<ul style="list-style-type: none"> Identify organism Treat infection Monitor for signs of sepsis 	<ul style="list-style-type: none"> Swab the wound and undertake NEWS monitoring for signs of sepsis Consider blood tests: cultures/FBC/CRP/U&Es Escalate as necessary e.g. hospital admission/Sepsis 6 Select antimicrobial dressing and start empiric systemic antibiotics for 7 days Link to Antibiotic Guide Monitor patient regularly to ensure expected improvement Review systemic antibiotic when swab result available (for chronic wounds and ulcers be aware of likely colonisers Monitor wound progress and review wound management plan at 2 weeks. Antimicrobial dressings are not routinely continued beyond 4 weeks. 	Honey Iodine	Silver	Circulation If circulation is compromised e.g. vascular, diabetic patients, please refer for specialist advice. See section 15: Referral pathways. Black toes would require an urgent referral.

Antimicrobial Dressings

Antimicrobial dressings are indicated for the short term treatment of localised infection; and in combination with systemic antibiotics for the treatment of spreading or systemic infection. Antimicrobial dressings should not be used to heal wounds or where symptoms of infection are not present. Where antimicrobial dressings are used, they should be reviewed after 2 weeks. If the wound is unchanged at two weeks, it is recommended that an alternative antimicrobial dressing is selected. Antimicrobial dressings should not routinely be continued beyond 4 weeks. Table 1: Antimicrobial Dressings Selection Tool can be used to guide users to the most appropriate antimicrobial dressing based on the characteristics of the wound. Cost should be considered alongside patient and wound-specific factors to ensure a cost effective treatment course is selected.

Honey Dressings

Honey dressings have antimicrobial and anti-inflammatory properties and promote autolytic debridement. This osmotic effect may cause pain and analgesia may be required. Patients with diabetes should have their control monitored whilst using topical honey, especially when applied to large areas. Honey dressings should be avoided in patients with extreme sensitivities to honey, bee stings or bee products.

Iodine Dressings

Iodine dressings release free iodine when exposed to wound exudate which acts as an antiseptic on the wound surface. Systemic absorption may occur from large wounds or with prolonged use. Caution in those with severe renal impairment or history of thyroid disease. Contra-indicated in children, those receiving lithium, thyroid disorders, pregnancy or breastfeeding. Inadine® has the propensity to dry out and adhere to the wound surface and requires frequent dressing changes.

Cutimed Sorbact

Cutimed sorbact is recommended for the treatment of local infection. Bacteria and fungi are physically and irreversibly bound to the dressing and are removed with each dressing change. Cutimed sorbact should be used as a primary dressing. Swabs can be unfolded and used under compression bandaging or be used to dress toes.

Other Antimicrobial Dressings

Flaminal® is a dressing with enzymatic antimicrobial activity. Experience with these dressings is limited and therefore it may be prudent to limit their use to mild infection until their place in therapy has been established.

Silver Dressings

Silver ions exert an antimicrobial effect in the presence of wound exudate and have broad antimicrobial activity. Practitioners should ensure good wound bed contact and conformability for full benefit from these dressings. Silver dressings are a second line choice when treatment with an alternative antimicrobial dressing has failed.

Topical Antibiotic Creams are not recommended.

Systemic Antibiotics are used for the treatment of spreading or systemic infection for a duration of 7 days. There is no evidence of benefit or improved wound healing in wounds that are colonised or locally infected. Inappropriate use of antibiotics can lead to resistant infections. Refer to [Tayside Antibiotic Guide](#) for more information.

Malodour

Malodour can be the most distressing symptom for patients, family and care givers. See Wound Complications: Fungating Wounds for management advice.

Secondary Dressings

See WMF section according to wound type for appropriate choice of secondary dressings.

Table 1: Antimicrobial Dressing Selection Tool

Antimicrobial Dressing		Exudate Level			
Type	Product	Nil	Low	Medium	High
Honey	Medihoney ointment*		√		
	Medihoney tulle*		√		
	Medihoney apinate*			√	√
Iodine	Inadine*		√		
	Iodosorb powder		√	√	√
	Iodosorb ointment*		√	√	
Cutimed sorbact	Swab		√	√	√
Flaminal	Hydro*		√		
	Forte*		√	√	
Silver	Aquacel Ag+ Extra			√	√
	Aquacel Ag+ Ribbon			√	√

Key: √ suitable □ not advised * If circulation is compromised, use only under the direction of a specialist

References:

1. Health Improvement Scotland. Resources to Guide the Management of Suspected Infection in Chronic Wounds. Edinburgh: NHS Scotland, 2017 (1st Ed).
2. Wounds UK Best Practice Statement. The use of topical antimicrobial agents in wound management. London: Wounds UK, 2013 (3rd Ed).
3. World Union of Wound Healing Societies (WUWHS). Wound Infection in Clinical Practice. An International Consensus. London: Medical Education Partnership Ltd. International Wound Journal: Vol 5; 3, 2008.
4. National Prescribing Centre. Evidence-based prescribing of advanced wound dressings for chronic wounds in primary care. MeReC Bulletin 2010; 21(01): 1-7.
5. Silver dressings – do they work? Drug & Therapeutics Bulletin. 2010; 48(4): 38-42.
6. Wounds International. Ten top tips for taking a wound swab. Available at: www.woundsinternational.com