

Wound Infection / Biofilm Framework

[Click here for Gloucestershire Wound Management Formulary](#)

Health Care Professionals must complete a holistic assessment and wound assessment (using TIMERS framework)
It is the responsibility of the Health Care Professional to document the wound assessment, rationale for treatment and review date in patient records

Biofilm Management

It is thought that Biofilms are present in almost 80% of chronic wounds and create a barrier/failure to respond to treatment.
Aim: Prevent reformation of the biofilm as these can reform within 24 hours without appropriate management - address at every dressing change.
Cleansing solution: Antimicrobial wound irrigation solution (surfactant) - soak gauze and apply to wound bed for 2 minutes.
Disrupt/debride: Debridement cloth/pad - moisten with irrigation solution. Mechanically debride for 2-3 minutes using circular motions
For wounds that fail to improve or remain static consider referral to TVN/Specialist services for further advice.

Consider Sepsis - Refer to NEWS2

Consider other sources of infection. See reverse of page for signs and symptoms.
If SEPSIS IS SUSPECTED SEEK MEDICAL ATTENTION

Be alert for clinical indicators of potential biofilm

Patient at high risk of infection

See reverse page for criteria

Yes

No

Consider cleansing with saline solution or wound surfactant (e.g. Octenilin™) and use a debridement pad to physically disrupt the biofilm

No Antimicrobial Required
Continue with treatment plan.
Review in minimum 4 weeks

Active cleaning of wound bed necessary using water or saline.
Use an appropriate **Cutimed® Sorbact®** (DACC) dressing to help prevent infection.
Cover with secondary dressing.
Review in minimum 4 weeks

Local Infection

Topical Antimicrobial
*See Continuum overleaf

Cleanse with saline solution or wound surfactant (e.g. Octenilin™) and use a debridement pad to physically disrupt the biofilm

Apply appropriate dressing from **Cutimed® Sorbact®** (DACC) range; Continue for 2 weeks.
Reassess weekly –wound assessment and photo; monitor for deterioration and escalate as appropriate

Are there any improvements?

Yes

No

Continue for a further 2 weeks.
If after 2 weeks the wound is improving, then discontinue

Apply second line antimicrobial dressing.
Continue for 2 weeks

Spreading and Systemic Infection

Systemic and Topical Antimicrobial
Refer to local protocols for systemic management of infection

Liaise with TVN and/or GP with regards to antibiotics and potential need for hospital admission.
Take swab of wound before commencing antibiotics.
Follow up wound swab results

Cleanse with saline solution or wound surfactant (e.g. Octenilin™) and use a debridement pad to physically disrupt the biofilm
For wounds with persistent slough and/or signs of necrosis, refer to TVN/Specialist services for consideration of other debridement measures e.g. conservative sharp debridement

Commence use of appropriate dressing such as:
DACC, Honey or Silver.
Review wound after 2 weeks of treatment

Are there any improvements?

Yes

No

Stop antimicrobial dressing.
Monitor for signs of local infection.
Review patient and consider "Green Pathway"

Refer to specialist service e.g. TVN, Complex Leg Wound Service, Podiatry and/or referring consultant for advice and follow-up

Increasing Microbial Burden in the Wound

Be alert for clinical indicators of potential biofilm

Contamination

Microorganisms are present within the wound **but** are not proliferating.
No significant host reaction is evoked.
No delay in healing is clinically observed.

Colonisation

Microorganisms are present **and** undergoing limited proliferation.
No significant host reaction is evoked.
No delay in wound healing is clinically observed.

Local Wound Infection

Covert signs of infection

Overgranulation.
Bleeding, friable granulation.
Epithelial bridging and pocketing in granulation tissue. Increasing exudate.
Delayed wound healing beyond expectations.

Overt signs of infection

Erythema.
Local warmth. Swelling.
Purulent discharge. Wound breakdown and enlargement
New or increasing pain.
Increasing malodour.

Spreading Infection

Extending induration.
Spreading erythema.
Inflammation or erythema >2cms from wound edge.
Crepitus.
Wound breakdown, dehiscence with or without satellite lesions. Lymphangitis (swelling of lymph glands).

Systemic Infection

Malaise.
Lethargy or nonspecific general deterioration.
Fever/pyrexia.
Severe sepsis.
Septic shock.
Organ failure.
Death.

Holistic assessment of patient

- Consider the following:
- Nutritional status including fluid intake
 - Co morbidities are they being managed effectively?
 - Medication regimes
 - Compliance with the treatment is there anything that is preventing compliance?
 - Pressure relief equipment

What is a high risk patient?

- Poorly controlled diabetes (i.e. hyperglycaemia)
- Peripheral neuropathy (sensory, motor and autonomic)
- Neuroarthropathy (Charcot Foot)
- Radiation therapy or chemotherapy
- Conditions associated with hypoxia and/or poor tissue perfusion (e.g. anaemia, cardiac disease, respiratory disease, peripheral arterial disease, renal impairment or rheumatoid arthritis)
- Immune system disorders (e.g. acquired immune deficiency syndrome)
- Connective tissue disorders (e.g. Ehlers-Danlos syndrome)
- Corticosteroid use
- Malnutrition or obesity
- Alcohol, smoking or illicit drug use
- Poor compliance with treatment plan

Signs of SEPSIS red flags

- Respiration rate: more than >25 per minute
- Oxygen saturation: SpO2 < 92%
- Systolic blood pressure: < 90mmHg or drop > 40 from normal
- Pulse rate > 130 beats per minute
- Level of consciousness or new confusion
- Temperature: Pyrexia > 38°
- Non blanching rash, mottled / ashen / cyanotic
- Not passed urine in the last 18hrs
- Response only voice or pain / unresponsive
- Consider NEWS2

Antimicrobial Stewardship

Use non-medicated dressings (DACC) to manage infection when possible, reserving broad-spectrum agents (Honey & Silver) for more resistant bacterial infections, and therapy should continue for an 'appropriate' duration, guided by appropriate and timely monitoring or therapeutic response.

Wound Infection in Clinical Practice. International Wound Infection Institute (IWII). Wounds International (2022).
Best Practice Statement: Antimicrobial stewardship strategies for wound management. Wounds UK (2020).
The role of non-medicated dressings for the management of wound infection. World Union of Wound Healing Societies (2020).

TIMERS Wound Assessment

- T** = **Tissue Type:** If viable with healthy granulation tissue, continue. If non-viable, consider debridement options before continuing treatment
- I** = **Inflammation or infection:** Review pathway if wound infection is suspected
- M** = **Moisture Levels:** Aim for a moist wound healing environment
- E** = **Edge of the wound:** Assess peri-wound barriers to healing
- R** = **Repair of tissue and regeneration:** Consider the healing trajectory of the wound, and what can be done to encourage regeneration and/or repair
- S** = **Surrounding Skin:** Appropriate skin care required. If no progress, review the T of TIMES