

Bacterial Burden in the Wound Handout

A Bacterial Burden in the Wound Handout

Bacterial Burden

- Infection = (Bacterial Load x Virulence)/Host Resistance
- Host resistance is most important determinant of wound infection.
Systemic and local factors that increase the risk of infection:

Systemic Factors	Local Factors
Malnutrition	Large wound area and/or depth
Edema	High degree of wound chronicity
Vascular disease and/or diabetes mellitus	Anatomic location, i.e. near anus
Use of corticosteroids and other immunosuppressant medications	Presence of foreign bodies and/or necrotic tissue in the wound
Inherited neutrophil deficits and/or immune deficient conditions	Mechanism of injury, i.e. trauma or perforated viscus
Prior surgery or radiotherapy	High degree of contamination
Alcoholism	Reduced tissue perfusion
Rheumatoid arthritis	Long or contaminated surgery

- Levels of bacterial burden:

	Bacterial Presence	Evidence of Host Injury	Visible Host Response
Contamination	Non-proliferating bacteria on surface only	No	No
Colonization	Proliferating bacteria on surface only	No	No
Critical Colonization (Local Infection)	Proliferating bacteria on surface and in wound bed	Yes	No
Spreading Infection	Proliferating bacteria on and in the wound and in surrounding tissues	Yes	Yes
Systemic Infection	Proliferating bacteria on and in the wound and in surrounding tissues, and have spread systemically	Yes	Yes

Infection Diagnosis

The South West Regional Wound Care Program



Vision: Integrated, evidenced-informed skin and wound care – every person, every health care sector, every day.

Mission: To advocate for the seamless, timely and equitable delivery of safe, efficient, and effective, person-centered, evidenced-informed skin and wound care to the people of the South West LHIN, regardless of the healthcare setting.



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- Diagnosis is based on the signs/symptoms observed
- Wound cultures can help determine the organism(s) causing the infection and can help in choosing the most appropriate antibiotic, but wound cultures **DO NOT** diagnose infection
- Levine Technique is most appropriate method to take a wound swab:
- When to swab:
 - An acute wound with signs of infection
 - Infected chronic wound that is not responding or is deteriorating despite antimicrobial tx
 - Chronic wounds with signs of systemic infection
 - As required by local surveillance protocols

Management of Bacterial Burden

- Optimize the host response:
 - Ensure comorbidities are properly managed
 - Reduce risk of infection
 - Optimize nutrition/hydration
- Reduce bacterial load:
 - Wound cleansing
 - Debridement of non-viable tissue
 - Management of exudate and odor
 - Use of topical antimicrobials, antiseptics, and antifungals ('Two Week Challenge')
 - Possible use of systemic antibiotics
- General measures:
 - Managing systemic symptoms
 - Managing person-centered concerns
 - Education
- How to choose the best approach to managing bacterial burden:

Bacterial Burden Level	Clinical Interventions
Contaminated	Monitor and risk reduction*
Colonized	Monitor and risk reduction*
Critical Colonization	Topical antimicrobials Effective debridement
Spreading Infection	Topical antimicrobials Effective debridement Systemic antibiotics
Systemic Infection	Topical antimicrobials Effective debridement Systemic antibiotics Rule out other infection sources