Guideline Summary: Clinical Signs & Symptoms (S&S) of a Wound Infection

Clinical Signs and Symptoms (S&S) of a Wound Infection
Two (2) or more of the below S&S are sufficient for a clinical diagnosis of potential or actual wound infection.
One (1) or more of the below S&S is sufficient for a client with Diabetes Mellitus Peripheral Arterial Disease or who is immunocompromised.

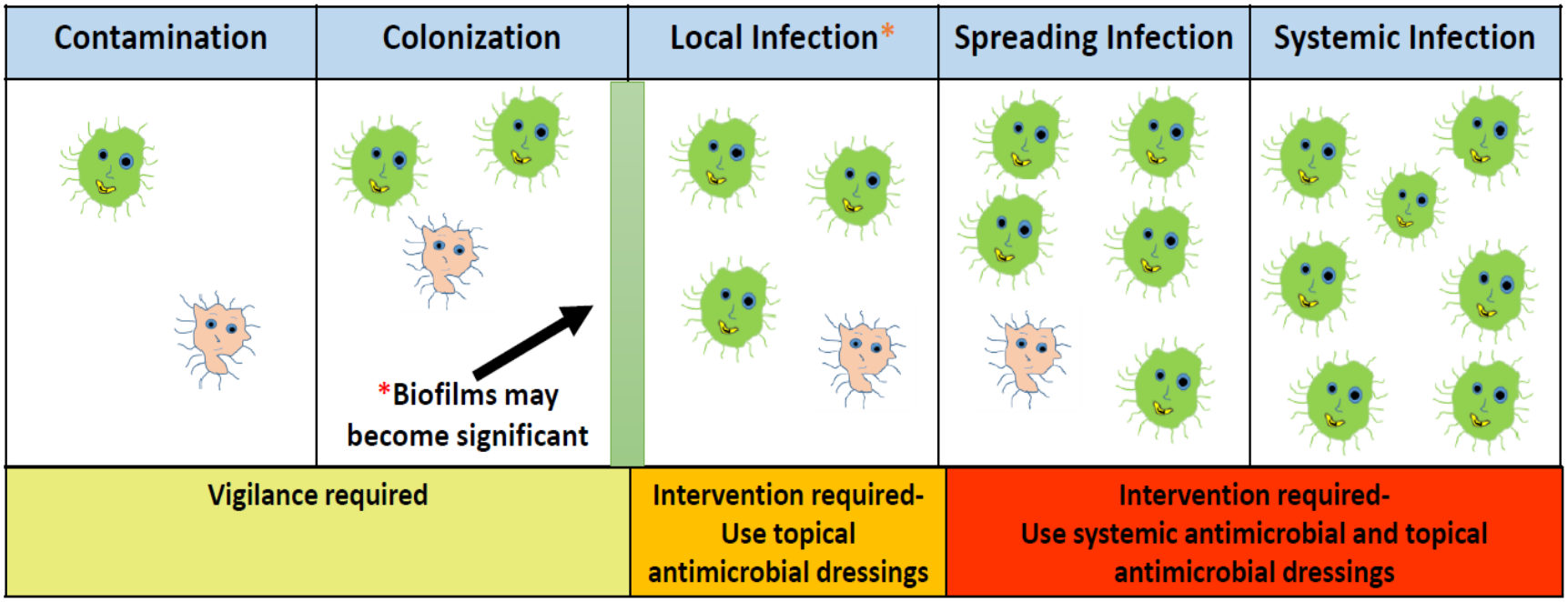
Continuum	Signs and Symptoms	Interventions
Contamination Microorganisms are transient, wound closure	• There are no signs of infection, erythema, pain, or excess wound exudate. • The wound progresses to closure in a timely manner.	• Hand hygiene protocols and Personal Protective Equipment (PPE) use with staff. • Hand hygiene and PPE teaching with client/family. • Education with client/family about prevention and signs & symptoms of wound infection. • Education with client about personal hygiene. • Aseptic dressing technique (sterile, no-touch, clean). • Cleanse wound bed with normal saline, potable water, sterile water, or wound cleaner. • Assess, measure wound, and monitor for changes. • Assess for wound pain. • Monitor wound for local infection.
Colonization Microorganisms present usually without impeding wound healing	• There are no signs of infection, erythema, pain, or excess exudate. • The wound progresses to closure. • If microbial colonization increases, there may be subtle changes in the wound healing progression. • Biofilm may develop, interfering with the wound healing progression by contributing to chronic inflammation and may lead to a localized infection.	
Local Infection Microorganisms invade leading to healing impairment. Subtle S&S of infection may evolve into more classic S&S of infection.	• Increased and/or new onset of wound pain, or increasing pain. • Peri-wound erythema, local warmth, and edema less than 2cm. • Poor healing and/or wound enlargement; less than 10% change in wound measurements after 1 week of care or less than 30% healing in 3 weeks. • Friable granulation / hypergranulation / bright red granulation tissue in wound bed. • Bridging and pocketing in granulation tissue. • Increase in exudate and/or change in exudate characteristic e.g., purulent. • Onset of, or increased malodour after wound cleansing.	**The above interventions PLUS** • Use topical antimicrobial dressing. • Manage biofilm with wound cleansing, irrigation and use of most appropriate wound debridement approach. • Monitor frequently for wound improvement or spreading infection, and/or additional changes. • If not improved in 7-14 days after initiating antimicrobial dressing collaborate with Wound Clinician or Physician/NP. Consider use of an antibiotic and/or a different antimicrobial dressing. • Monitor for spreading infection.
Spreading Infection Microorganisms invade with classic signs & symptoms of wound infection	• Increased wound size; & the presence of satellite, or new satellite wounds. • Periwound warmth extending 2 cm or greater and/or 2-3°C change in periwound skin temperature using an infrared thermometer. • Periwound erythema and induration extending 2 cm or greater. • Mild to moderate periwound swelling/edema. Soft tissue crepitus around the wound may be present. • Increasing malodour after wound cleansing. • Changes or increased blood glucose in those with diabetes mellitus. • Lymphangitis, general malaise/lethargy.	**The above interventions PLUS** • Notify the Physician/NP for consideration of culture and susceptibility (C&S) swab and systemic antibiotics. • Monitor and notify Physician/NP if no improvement in 72 hours after initiating systemic antibiotics. • Report new probe to bone to Physician/NP immediately. • Consider use of a different antibiotic and/or antimicrobial dressing; reassess very 2 weeks. • Monitor for systemic infection (sepsis, bacteremia). • As wound heals and S&S of infection subside, consider discontinuation of antimicrobial dressing. Some high risk clients may benefit from ongoing use of antimicrobial dressings.
Systemic Infection Microorganisms invade with classic signs & symptoms of systemic infection	• Increasing general malaise/lethargy. • Fever, rigor and/or chills. • Change in behaviour or cognition e.g., delirium. • Change in blood glucose levels e.g., clients with diabetes mellitus. • Autonomic Dysreflexia in clients with T6 spinal cord injuries or above. • Elevated heart rate and respirations. • Elevated white blood cell (WBC) count. • Severe sepsis / septic shock leading to multi-organ failure and/or death.	

Vigilance Required

Increasing Clinical Concern(s)

Intervention Required

Wound Infection: Interaction between Microbe & Host



Increasing clinical problems & increased intervention required

*As wounds become increasingly colonized, biofilms may develop adding to the likelihood that the wound will become infected.

Source: WUWHS, (2008); Swanson et al. (2015). Increasing clinical problems & increased intervention is required to prevent wound deterioration & facilitate healing *Wound International, 6*(2), 22-27; Carpenter et al. (2016). Expert recommendations for optimizing outcomes in the management of biofilm to promote healing of chronic wounds. *Wounds*, (June). IWII (2016, Nov 11). International Consensus Update: Wound infection in clinical practice.