Delayed Wound Healing and Why It Can Happen

An important consideration to identify when a wound stagnates in healing is the possibility that there is critical colonization happening. Critical colonization can cause a biofilm to develop over the wound bed, inhibiting appropriate dressing treatments from helping the wound to progress. Wound infection assessments are critical to identifying wounds with increased superficial bacterial burden (NERDS) that may respond to topical antimicrobials and deep infections (STONEES) that usually require systemic antimicrobial agents.

What is critical colonization?
Critical colonization occurs within a wound bed when there is a replication of bacteria, though there is an absence of classic signs of infections such as warmth or swelling to the area. Critical colonization leads to the formation of a biofilm over the wound bed.

What is biofilm?
Biofilm has been described as an invisible complex community of bacteria and fungi embedded in an extracellular matrix of protein, lipids, and polysaccharides that is adherent to a wound or surface. It is associated with impaired epithelialization and granulation tissue formation, and promotes a low-grade inflammatory response that interferes with wound healing.

How to Manage Critical Colonization and Biofilms
Biofilm removal is critical in the early stages to prevent stagnation of healing. This is done ideally through surgical debridement by removing devitalized tissue until granulation tissue is exposed. Ultrasound is also used as an adjunct in some cases.

Prevention of biofilm formation and/or treating it as soon as it is suspected is key. Application of topical antimicrobials to kill or inhibit microorganism growth as well as the use of products to decrease biofilm colonies from forming (such as Gentell’s Honey Gauze, Honey Alginate or Calcium Alginate Ag) are all options for prevention. The use of Iodine (such as Povidone Iodine or Cadexamer Iodine) has also been shown to be beneficial in some cases.