



Association for
the Advancement
of Wound Care



4 Week Marker

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Lower Extremity Summit
November 2-3 • Sacramento, California

Objectives

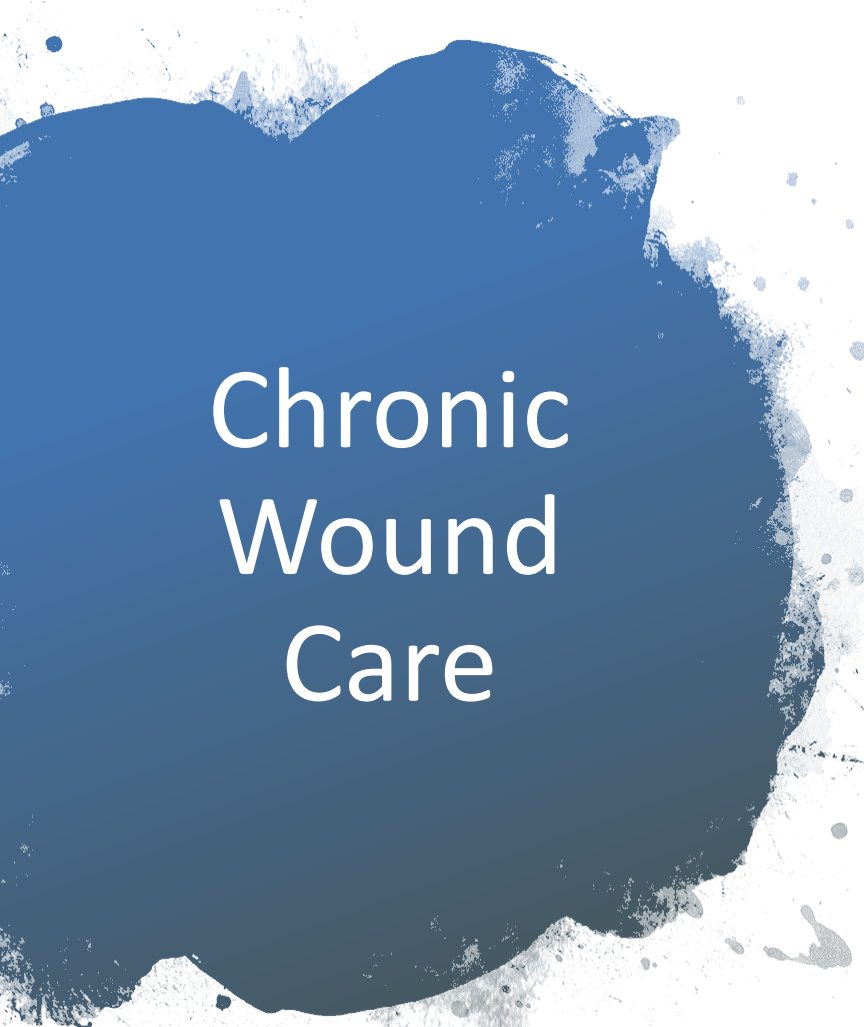
- Define what makes a wound chronic
- Discuss the literature showing the impact of healing rates in the first four weeks for DFU
- Discuss the literature showing the impact of healing rates in the first four weeks for VLU
- Discuss the insurance coverage implications of the first four weeks of healing
- Discuss what makes the standard of care for chronic wounds

Background

- Wound care involves two main types of wounds:
 - Acute wound: Surgical, skin tear, laceration, traumatic
 - Chronic wound: Venous leg ulcer (VLU), Diabetic Foot Ulcer (DFU), Pressure ulcer (PU), and arterial ulcers

Facts about Chronic Wounds

- The prevalence of leg ulcers in the US ranges between 500,000 and one million.
- The total prevalence of all skin wounds and ulcers was 4.78 million in 2004.
- The medical management and personal financial implications for chronic wounds cost \$12 billion in 2004, in both direct and indirect costs.
- Chronic wounds are collectively the most expensive skin diseases treated in the US.
- For venous leg ulcers the costs of care may be \$40,000 per year per patient.
- These quality of life impairments (of the patient, the caregiver, or both) result in an estimated \$968 million in intangible costs.



Chronic Wound Care

Definition: Part of the problem is there is no one definition

- WHS (1994)- fail to progress through a normal orderly and timely sequence of repair or wounds that pass through the repair process without restoring anatomic and functional results
- EPUAP/NPUAP (2009)- a wound that does not proceed through the normal stages of healing but becomes stuck in one phase.
- CMS (2014)- wounds that have failed to proceed through an orderly and timely series of events to produce a durable, structural and cosmetic closure.



Diabetic Foot Ulcer



Arterial Ulcer



Pressure Ulcer

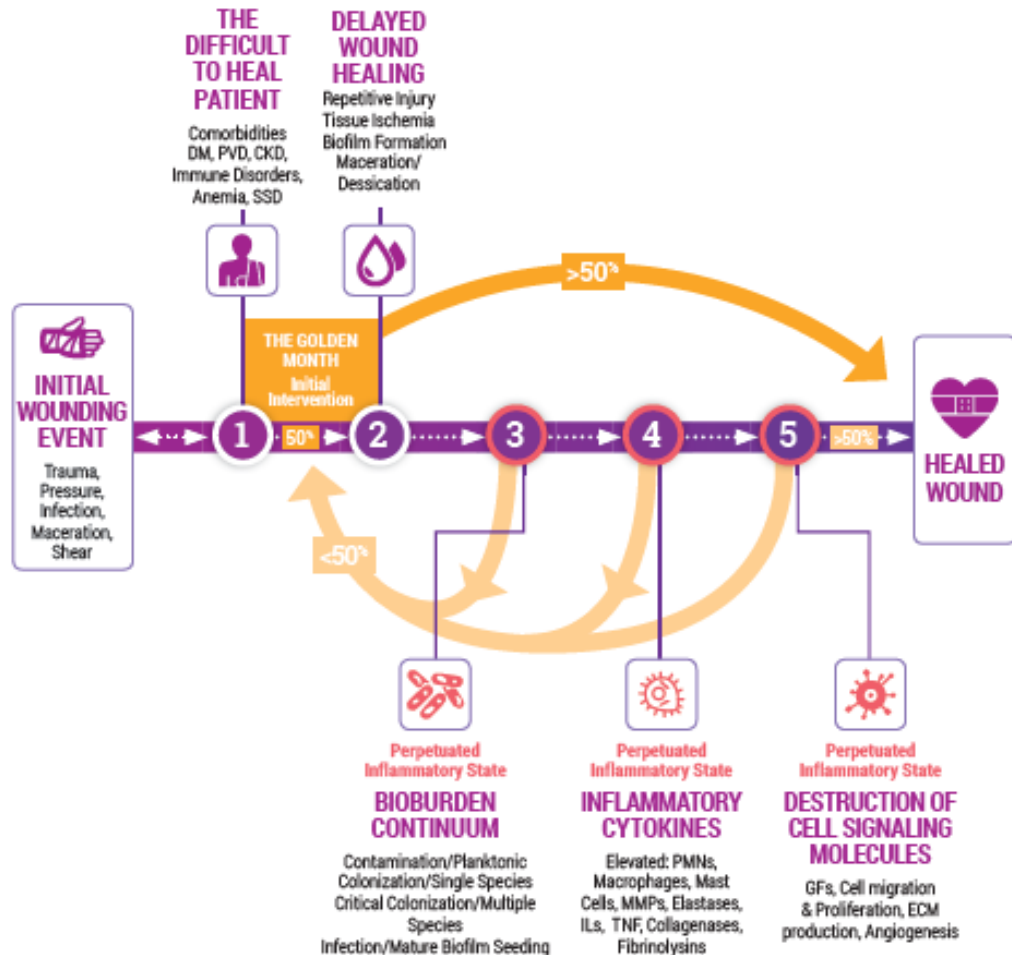


Venous Ulcer

Chronic Wound Care

- -Some definitions guide a time frame, such as 3 months, as a determination of chronicity
- -Often it takes these wounds months to years to heal, so just their etiology may be enough to make them chronic

The Golden Month



Golden Month

- The first 4 weeks after wounding are what we have called the “Golden Month”. This is borrowed from famed University of Maryland Medical Center trauma surgeon Dr. R Adams Crowley who designated the first few minutes after trauma or serious cardiac event as the “Golden Hour”, when quick skilled intervention was necessary to prevent loss of life and function.⁴ For wounds, the first 4 weeks are when the treatments reverse the entropic wound cycle and allow for 50% of wounds to heal in the first 4 weeks of therapy. Sadly, the other 50% do not reach this goal despite treatment.

Standard of care

- General principle:
 - Use initial interventions:
 - DEBRIDEMENT
 - MOIST WOUND HEALING
 - OFFLOADING/ COMPRESSION
 - EXUDATE AND BACTERIA MANAGEMENT

Percentage change of wound measurements DFU

- Wound area measurements at baseline and after 4 weeks were performed in 203 patients.
 - The midpoint between the percentage area reduction from baseline at 4 weeks in patients healed versus those not healed at 12 weeks was found to be 53%.
 - Subjects with a reduction in ulcer area greater than the 4-week median had a 12-week healing rate of **58%**, whereas those with reduction in ulcer area less than the 4-week median had a healing rate of only **9%** ($P < 0.01$).
 - The absolute change in ulcer area at 4 weeks was significantly greater in healers versus non-healers (1.5 vs. 0.8 cm², $P < 0.02$).
 - The percent change in wound area at 4 weeks in those who healed was 82% (95% CI 70–94), whereas in those who failed to heal, the percent change in wound area was 25% (15–35; $P < 0.001$).

Case Study

- 78 year old male with history of diabetes and hypertension.
- Presents to office with a blister on bottom of his foot.



What to
do
now???



Assess bloodflow



Measure the wound



Assess for infection



Document the wound



Refer to specialist



Total Contact Casting

Percentage change in wound measurements: VLU

The purpose of the study was to assess the use of percentage change in venous leg ulcer area over the first few weeks of treatment as a prognostic indicator of healing or non-healing at 24 weeks.

- Cohort study from a multicenter randomized clinical trial that enrolled 104 patients.
- Wounds were measured using digital planimetry for 4 consecutive weeks following the inception of good wound care.
- The percentage change in area over time distinguished between those who healed and those who failed to heal after 24 weeks of good wound care ($P < 0.05$).
- The rate of healing (area healed per week) did not differentiate between those who healed at 24 weeks and those who did not, as all patients had similar rates of healing over the first 4 weeks of treatment.
- Percentage change in area from baseline to week 4 provided the best combination of positive and negative predictive values (68.2%, 74.7%)
- Percentage change in area over the first 4 weeks of treatment represents a practical and predictive measure of complete wound healing by 24 weeks.

Case study

- 62 year old female with a history of lower leg swelling and “leaking” from the side of her leg.
- She states her socks have been wet when she takes them off
- She increased her Lasix with no improvement



What to
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now???



Assess bloodflow



Measure the wound



Assess for infection



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Refer to specialist



Compression

Significance

The importance of the routine, objective assessments that measure the wound are important for predicting healing.

Determines the treatment plan from passive to active wound healing (creating an ideal wound environment vs adding something to allow wound healing)

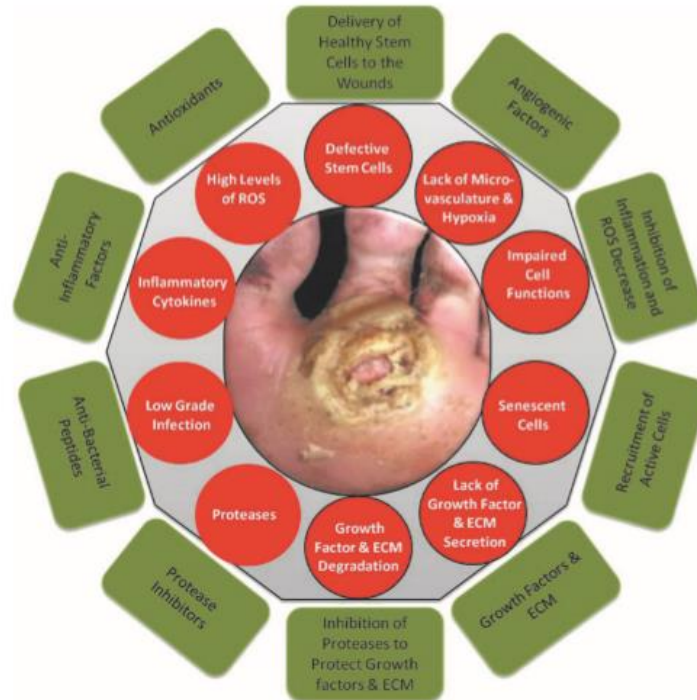


Figure 1. Molecular and cellular deficiencies in chronic wounds (red circles) and factors required to overcome them (green rectangles). Nonhealing ulcers and wounds represent a failure to achieve complete reepithelialization in the appropriate temporal sequence of tissue repair. Such wounds are characterized by excessive inflammation (including elevated levels of proteases, ROS, and inflammatory cytokines), by senescent cell populations with impaired proliferative and secretory capacities, and by defective MSCs. Excessive inflammation leads to degradation of newly synthesized growth factors and ECM. There is a need to restore the proper balance of cytokines, growth factors, and proteases, to recruit functional cells (epithelial cells, fibroblasts, and endothelial cells) to the wound area, and to deliver healthy functional MSCs directly to the wound to compensate for the patient's own dysfunctional stem cells. ECM, extracellular matrix; MSCs, mesenchymal stem cells; ROS, reactive oxygen species.

Advanced wound therapies

At the four week mark a line should be drawn to see if the patient qualifies for advanced wound therapies.

Advanced wound therapies will be discussed in additional lecture series

Coverage



- Some insurances require a patient to have failure of standard wound care before advanced wound therapies such as cellular base products or even negative pressure wound therapy are covered.
- Document, document, document
 - Standardize the documentation

References

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