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# The Use of PHI Technology in Treatment of Hard to Heal Wounds

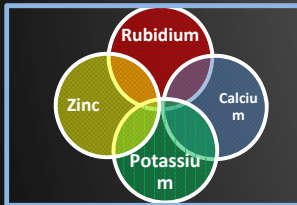
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## PURPOSE

To share clinical experiences utilizing PHI Technology on the care of difficult, chronic and hard to heal wounds

## DEFINITION

PHI technology utilizes several metal ions within a PEG matrix which promotes metal ion exchange (PHI- polyhydrated ionogens) at the wound bed, modulating MMP production in chronic wounds, burns, pressure sores and venous stasis ulcers.



## MATRIX METALLOPROTEASES

- Initiate tissue remodeling by degradation of ECM macromolecules (collagen/proteoglycan)
- Malignant cells exploit MMP's to promote metastasis
- Zinc dependent proteins
- Some MMP's assist in removal of non-viable tissue
- Prepare wound for healing
- Marked overproduction in chronic wounds
- Breakdown of Healthy replacement tissue

### Healing Wounds

LOW INFLAMMATORY CYTOKINES  
 LOW PROTEASES  
 FUNCTIONAL ECM  
 HIGH MITOGENIC ACTIVITY  
 MITOTICALLY COMPETENT CELLS

### Chronic Wounds:

HIGH INFLAMMATORY CYTOKINES  
 HIGH PROTEASES, ROS  
 DAMAGED ECM  
 LOW MITOGENIC ACTIVITY  
 SENESCENT CELLS

## Method

Sequential patients with wounds that were non-healing for 4-6 weeks were initiated on Dressings utilizing PHI Technology. Appropriated wound care was employed and exhausted including pressure relief, anti-microbials, and serial debridement. Adequate vascular viability was accessed and confirmed prior to and during treatment.

## RESULTS

- 25 patients with non-healing wounds
- 2 patients with hospital acquired heel decubitus ulcerations
- 4 patients with brawny venous stasis changes and ulceration
- 19 diabetic related foot wounds, neuropathic, post-amp, etc
- 3 patients have expired
- 3 lost to follow
- 2 went to extensive debridement or amputation
- 2 non-healing
- 15 healed
- 0 complications related to use of PHI technology

## CASES

55 yo Caucasian Male, airline attendant  
Diabetes Mellitus, Family History of Diabetes, PVD and Limb Loss  
S/P vascular intervention  
Showered emboli  
Painful Dusky Digit-amp 6/12/2007



54 yo male  
Diabetes, Hepatitis  
History of Trauma and repeated surgery  
Partially marsupialized wound



## PHI Technology

- Easy to Use
- Q24h application
- User Friendly
- Cost-effective
- Integral part of Dynamic Wound Care Program