Noncontact Low-Frequency Ultrasound* Therapy for Deep Tissue Injuries and Unstageable Pressure Ulcers in the Acute-Care Setting: A Case Study

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**Background**

With Medicare no longer reimbursing for Stage III-IV pressure ulcers not present on admission to acute-care facilities, it’s important that deep tissue injuries (DTIs) and unstageable pressure ulcers, that develop post admission, not progress to Stage III-IV ulcers. Evidence regarding optimal DTI treatment is scarce,1,2 and unstageable pressure ulcers are often Stage III-IV after slough/necrosis removal.3 New evidence suggests that noncontact low-frequency ultrasound (NLFU)* therapy contributes to resolution of DTIs, thereby minimizing occurrence of Stage III-IV pressure ulcers.4

**Case Series**

Three ICU patients with DTIs were treated with NLFU, sharp/mechanical debridement, topical agents and dressings. All 3 patients had developed DTIs not present on admission.

**Conclusions**

Together with topical agents, dressings, and debridement, NLFU may help prevent DTIs or unstageable pressure ulcers from progressing to Stage III/IV pressure ulcers resulting in significant cost savings for the facility.

**Outcomes**

**Patient 1**

**Patient**: 71-year-old man with ESRD on dialysis, respiratory failure, cardiomyopathy, pulmonary hypertension, thrombocytopenia, atrial fibrillation, type 2 diabetes, and hypertension  
**Wound**: Sacral/buttocks DTI 40 cm²  
**Treatment**: NLFU applied for 6-7 minutes, 5 days/week; skin barrier cream and open to air initially, then skin barrier cream and adhesive foam border dressing  
**Outcomes**:  
- Blister developed and opened to reveal pink epithelium in 18 days  
- Almost no visible DTI at 3 weeks  
- DTI resolved

**Patient 2**

**Patient**: 43-year-old comatose woman with type 2 diabetes admitted after 2 weeks in a Mexican hospital for a traumatic fall  
**Wound**: Unstageable pressure ulcers on chin (4 cm² each), occiput/head (24 cm²), and thoracic spine (42.5 cm²)  
**Treatment**: NLFU applied for 3-7 minutes/wound, 5 days/week  
**Outcomes**:  
- Chin ulcers healed in 5 weeks  
- Occipital ulcer reduced to 2 areas 0.6 cm² and 3 cm² with 60% granulation in 4 weeks  
- Thoracic ulcer reduced to 1.5 cm² with 95% granulation in 6.5 weeks  
- Wounds healed or Stage II on discharge

**Patient 3**

**Patient**: 33-year-old diabetic woman with ESRD on dialysis, Type 2 diabetes, CAD, history of stroke, recent below-the-knee amputation, left-arm ischemia, and wounds of left fifth digit, bilateral feet, and recent sternal wound infection  
**Wound**: Coccygeal skin tear/DTI evolved to unstageable ulcer (25 cm²) with 100% slough  
**Treatment**: NLFU applied for 6-7 minutes, 5 days/week; Medihoney and adhesive foam dressing  
**Outcomes**:  
- Ulcer size decreased 44% to 14 cm² with 50% granulation in 4 weeks  
- Healing progressed rapidly, Stage II on discharge

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**References**


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**Disclosures**: The author received no financial support for this study. Funding for poster design provided by Celleration. Presented at: Symposium on Advanced Wound Care, Las Vegas, NV, Sept. 27-29, 2013.