

High Resolution Ultrasound

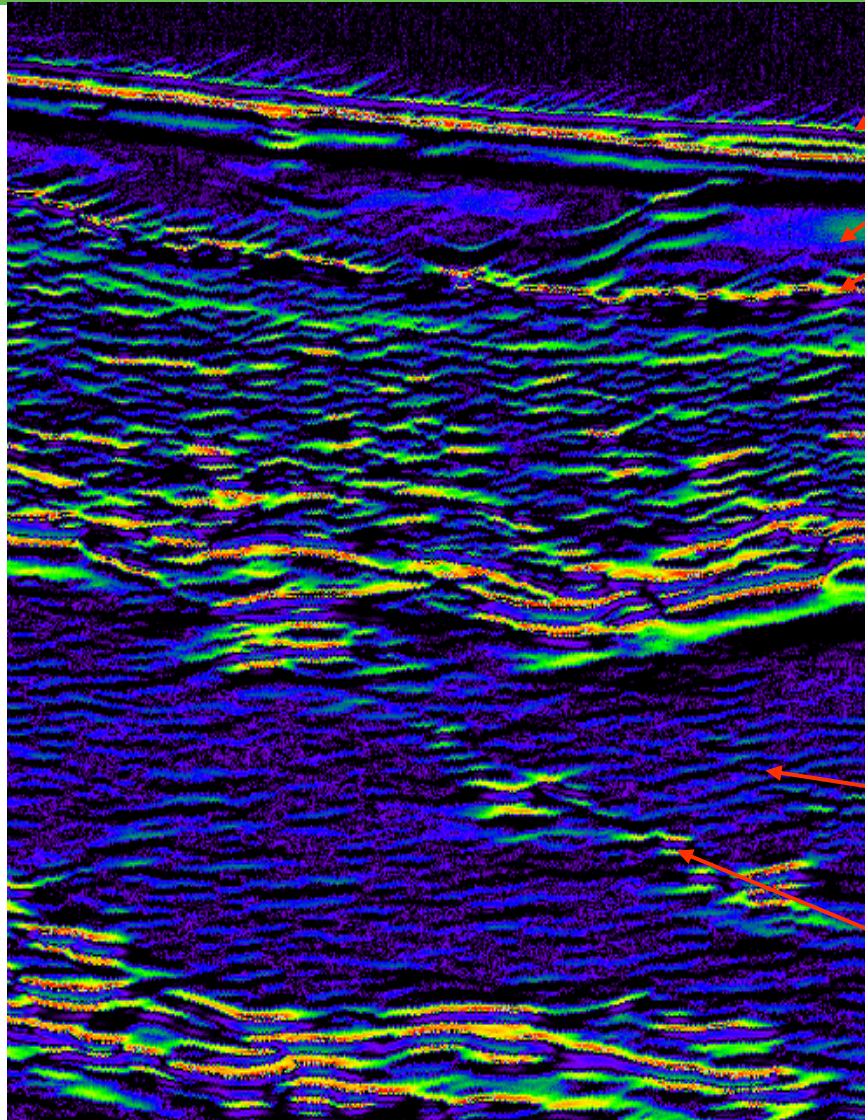
Detection, Prevention and Management of Pressure Ulcers

Incidence

10% of of patients in acute and extended stay facilities in the western world develop pressure ulcers.

Annual cost ~\$7billion

Normal Skin



Reflections from probe membrane

Coupling gel

Stratum corneum of epidermis

Living strata of epidermis

Reflections from acoustic interfaces
(e.g. between collagen & hydrated
ground substance) in papillary layer
of dermis

Reflections from acoustic interfaces
in reticular layer of dermis

Hypodermis (panniculus adiposus)

Reflections from collagen & ground
substance interfaces within fibrous
supports of adipose tissue

LONGPORT High Frequency Ultrasound Scanner

Advantages

- Objective Assessment for
 - Early and reliable detection of developing pressure ulcers
 - Improved monitoring of existing wounds
 - Risk-based and cost-effective treatments
- Objective Documentation for
 - Advanced record keeping
 - Improved staff awareness
 - Reduce exposure to litigation and sanctions

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- Early and reliable detection of developing pressure ulcers

Image tissue changes that precede visible changes regardless of skin pigmentation

Pathogenesis

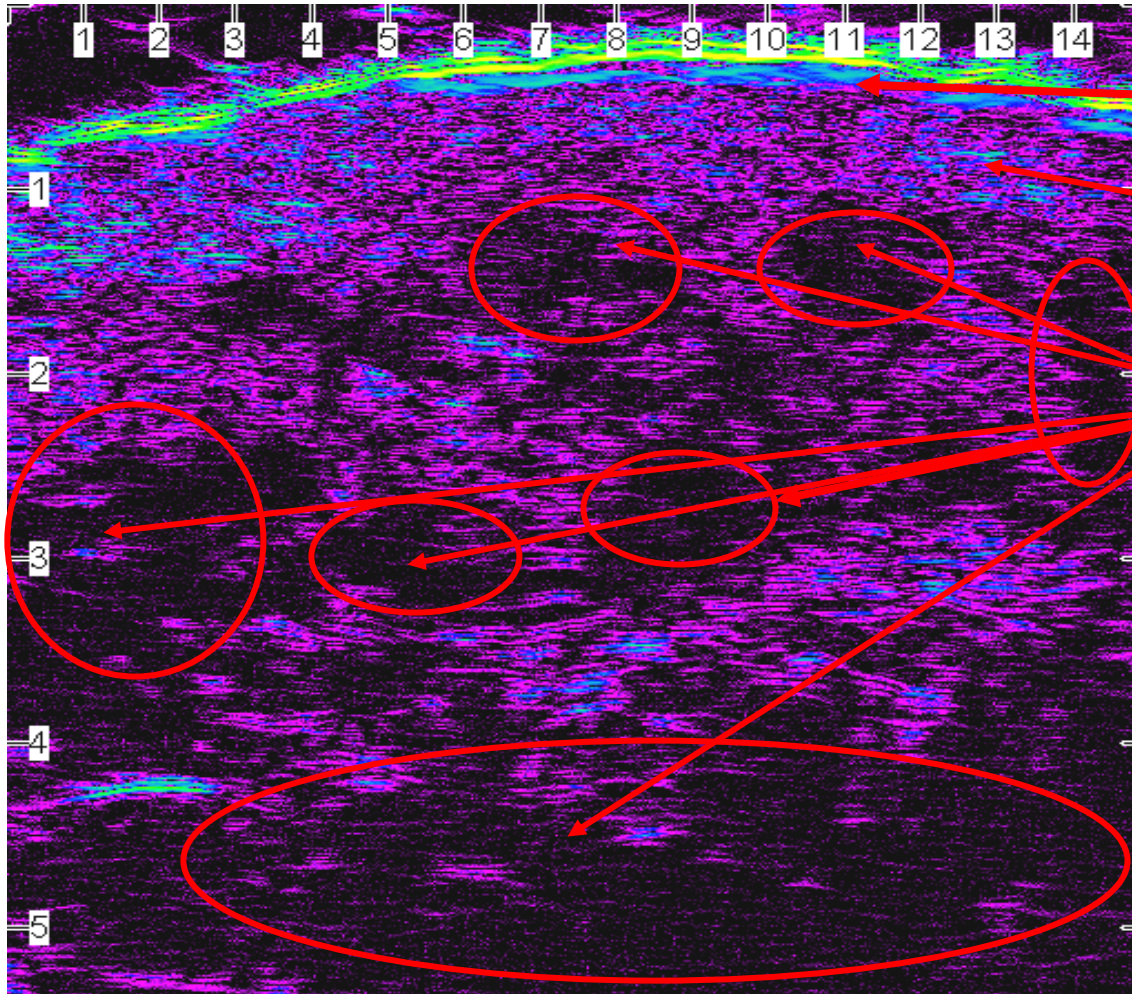
“Pressure ulcers appear to begin in the subcutaneous tissue between the skin and bone as pockets of edema, indicated ultrasonically by pockets of weak reflections and progress by direct extension into dermal tissue”

Paul Quintavalle, DPM

Director

Virtua Wound Care Center

Phase One Pre-Pressure Ulcer



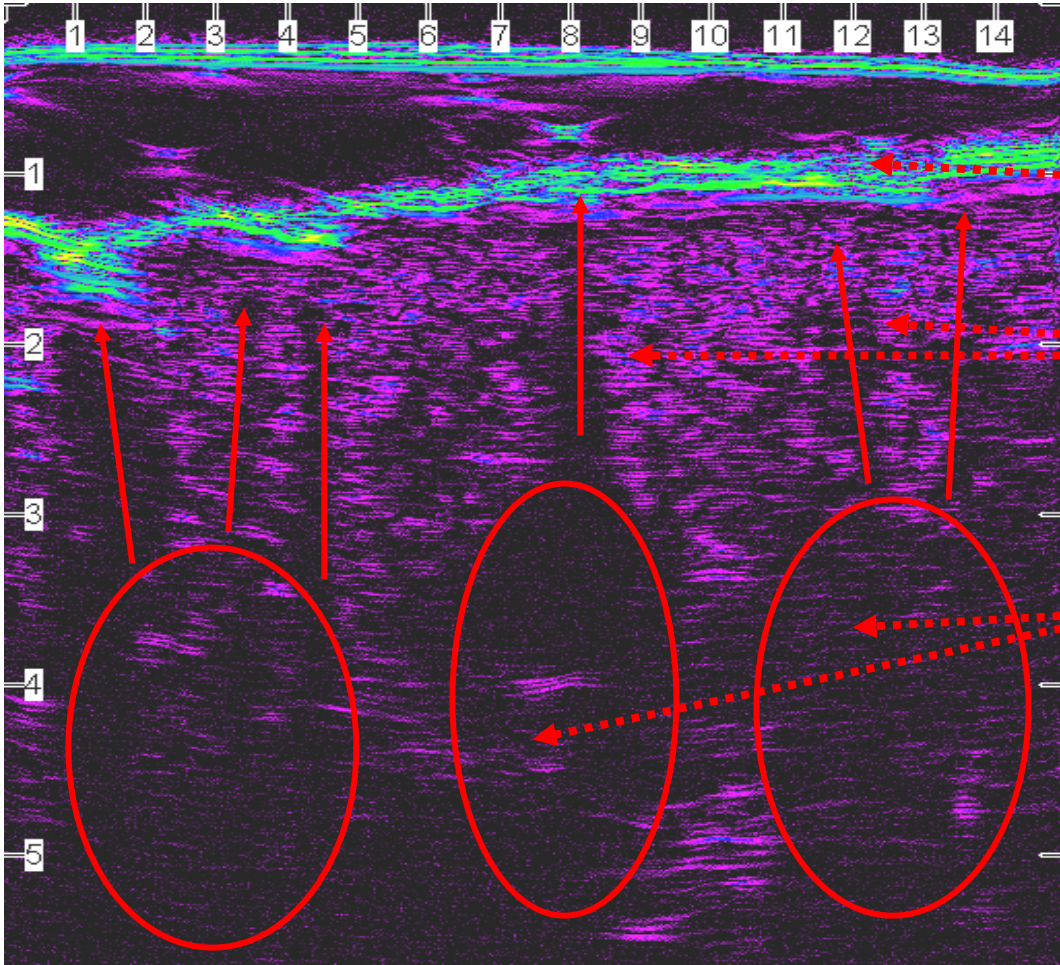
Intact Epidermis

Normal Dermis

Pockets of subcutaneous inflammation



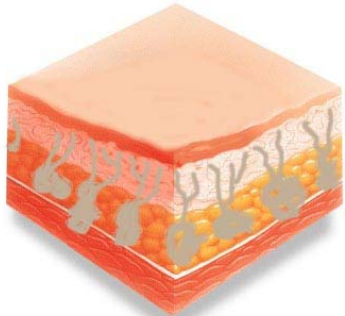
Phase Two Pre-Pressure Ulcer



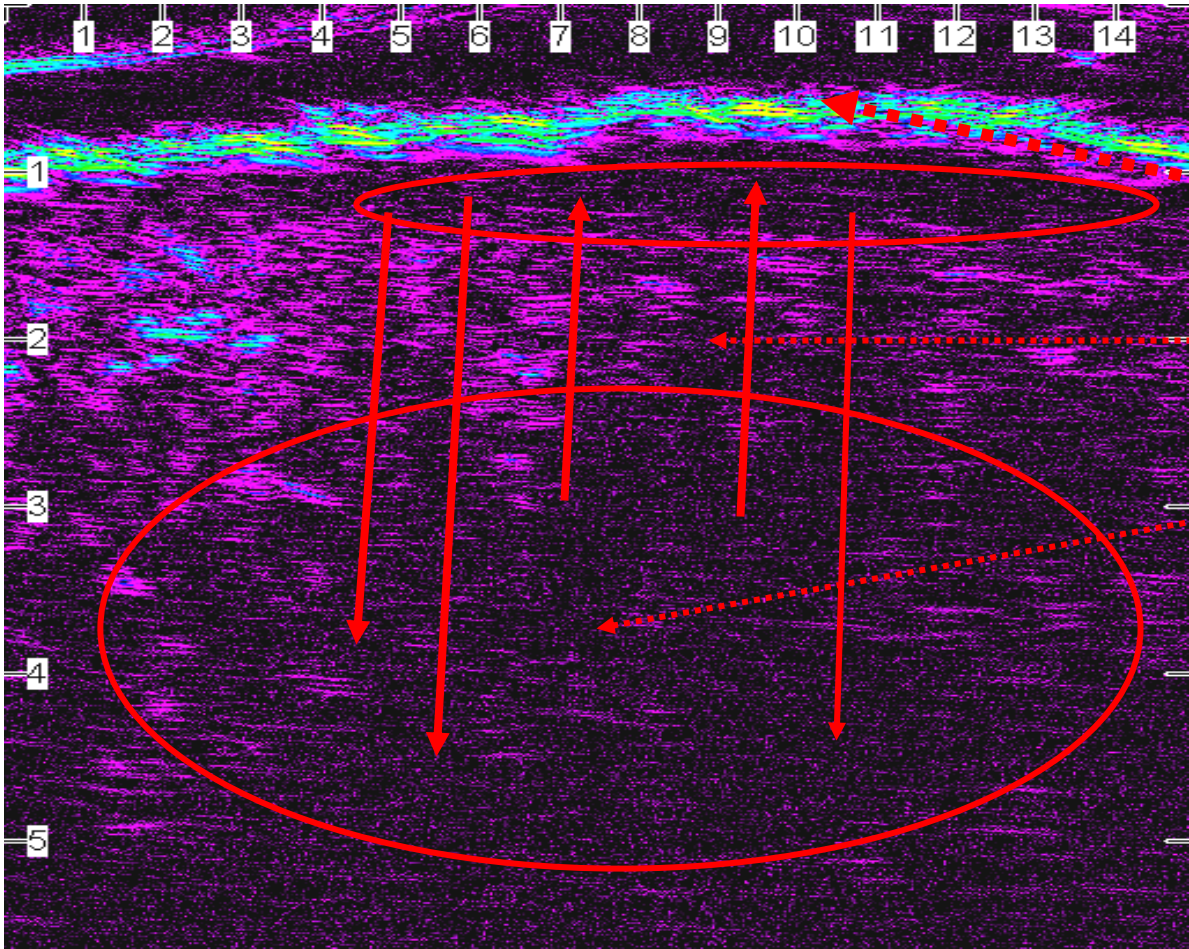
Intact Epidermis

Strips of dermal damage

Increased subcutaneous damage



Phase Three Pre-Pressure Ulcer



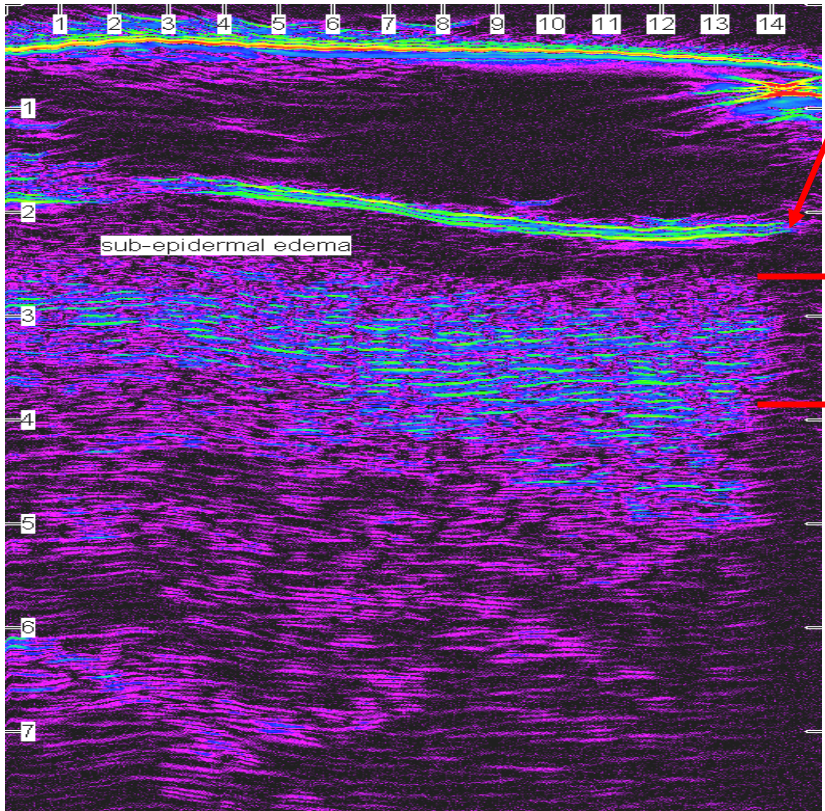
Intact Epidermis

Strips of dermal damage

Increased subcutaneous damage

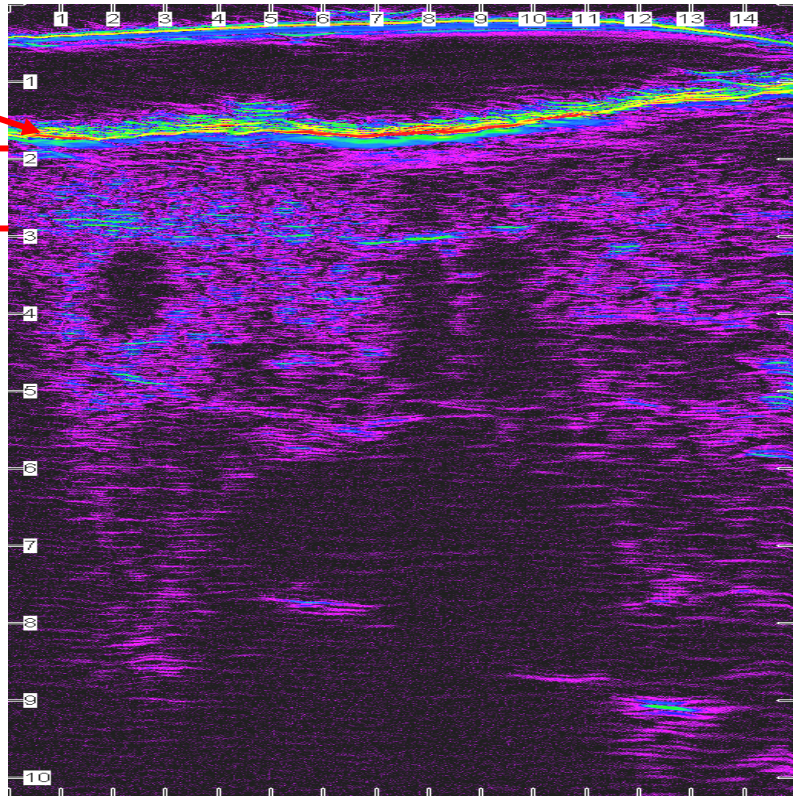


Differentiate pressure ulcer from friction or incontinence related breakdown



Superficial Edema

Friction



Deep Edema

Pressure

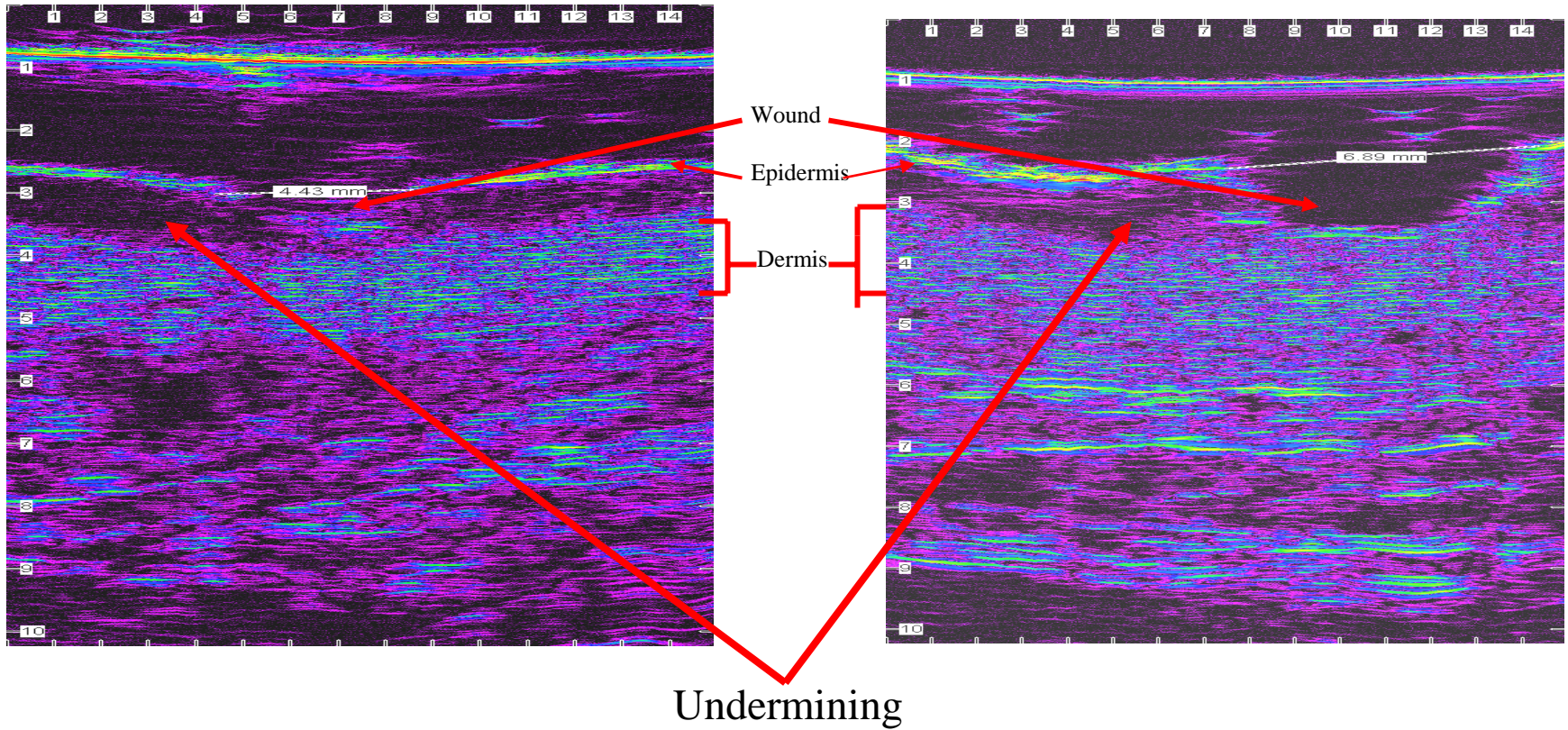
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Improved monitoring of existing wounds

“ Up until now, nurses have been limited to a two-dimensional picture and the presence of exudate for assessing a wound. With this scanner we can see if healing has taken place in deeper tissue and not just on the surface. This device takes the guess work out of wound treatment.”

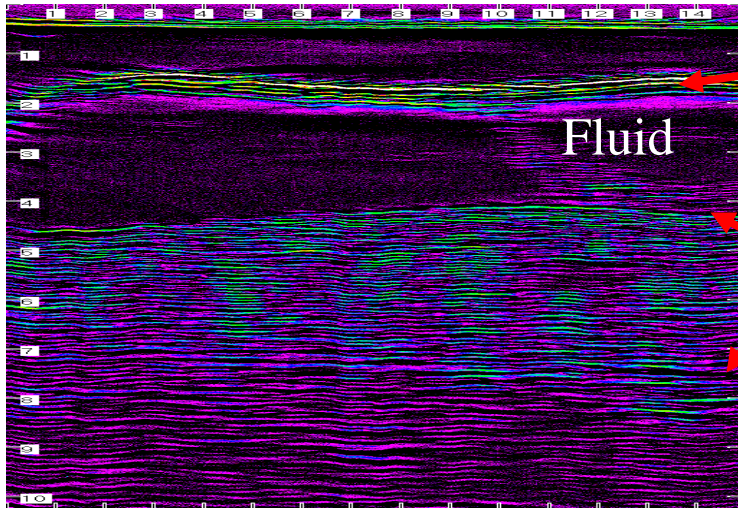
Courtney H. Lyder, ND
Professor, University of VA

Wound Undermining

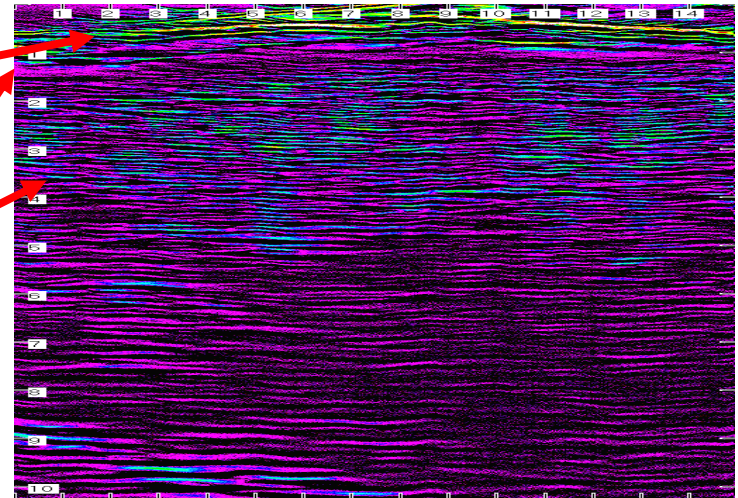


Measuring Treatment Effectiveness

left heel (day 1)



left heel (day 7)



Epidermis

Dermis

Same heels compared a few days after heel care program implemented. Notice a dramatic reduction of fluid between epidermis and dermis

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**Implement treatment based on these
objective findings!**

“Facilities’ caregivers now can target the
intervention much more precisely based on the
interpretation of the scans.”

Advanced Clinical Services

Control Resource Utilization

Risk-based and cost-effective treatments

“... , we have found numerous benefits since we purchased your scanner...allows us to maintain a minimum number of protocols thereby reducing the variety of wound management products and associated costs.”

Administrator,
Little Flower Manor
Wilkes Barre, PA

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“Use of the scanner improved the facility’s skin care outcomes- and lowered its skin care costs by about \$30,000 in the first year of use.”

Nancy DeFranco, RN, BSN
Little Flower Manor
Wilkes Barre, PA

Risk-based and cost-effective treatments

Implement wound care strategies best suited for wound characteristics.....

Patient specific

Wound specific

Resource control utilization

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Reduce exposure to litigation and sanctions

“Pressure ulcers are the #1 litigated wound problem in nursing homes and long term care.”

Courtney H. Lyder, ND

Professor, University of VA

Reduce Exposure to Litigation and Sanctions

- Advanced record keeping
- Comprehensive electronic record
- Integrate patient and wound assessment data
- Integrate treatment protocols and ultrasound images

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Conclusion:

- The LDS is a valuable tool for pressure ulcer detection and assessment
- Can aid in the reduction of the incidence of pressure ulcers
- Can aid in the treatment of pressure ulcers
- Can aid in the reduction of liability