

Objective Quantitative Analysis of Wound Bed Preparation for Pressure Ulcers and Venous Leg Ulcers Utilizing a Hydroconductive Wound Dressing

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Statement of the problem

The concept of wound bed preparation provides a systematic approach to removing the barriers to wound healing and enhancing the effects of wound therapies. An effective product for wound bed preparation needs to facilitate removal of nonviable tissue and debris, decrease excessive exudate, decrease the bacterial level, remove deleterious chemicals, and set the stage for healing. Serial observation of the wound by the clinician has historically been the subjective evaluation by which wound bed preparation was measured. A more objective quantitative analysis is necessary to document the effectiveness of a treatment in performing wound bed preparation.

Methodology

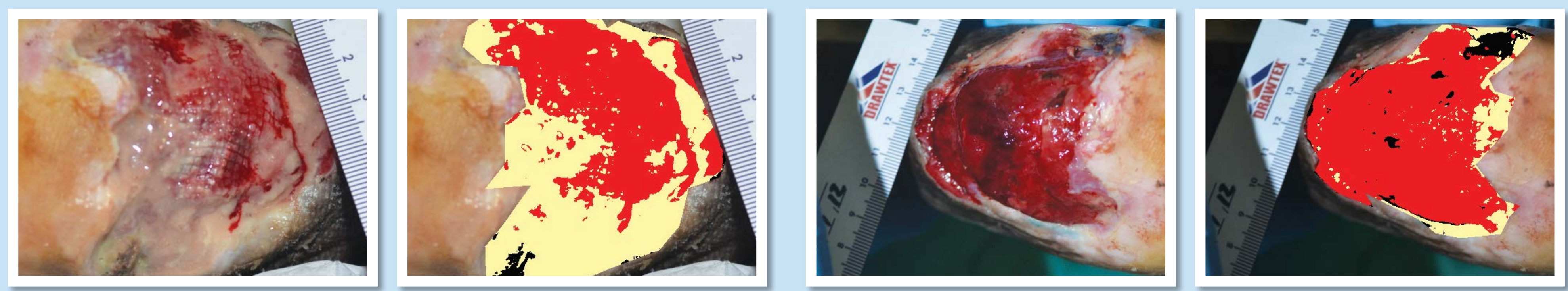
An advanced pattern recognition software algorithm utilizing artificial intelligence to analyze digital wound images * was used on a series of 26 pressure ulcers and 15 venous leg ulcers being treated with a Hydroconductive wound dressing ** to evaluate the effectiveness of wound bed preparation. This technology calculates wound measurements and analyzes the composition of the wound bed. In the digitized wound photograph, this program divides the wound into three tissue-type classifications, each represented by a distinct color.

Outcomes & Conclusions

Utilizing the imaging system, wound bed preparation success or failure was successfully documented serially over time. The use of the Hydroconductive dressing selectively removed nonviable tissue leaving the healthy granulation tissue intact. The hydroconductive dressing utilized in these two series of patients was useful for wound bed preparation and the degree of wound bed preparation able to be objectively quantified by digitized wound image analyses.

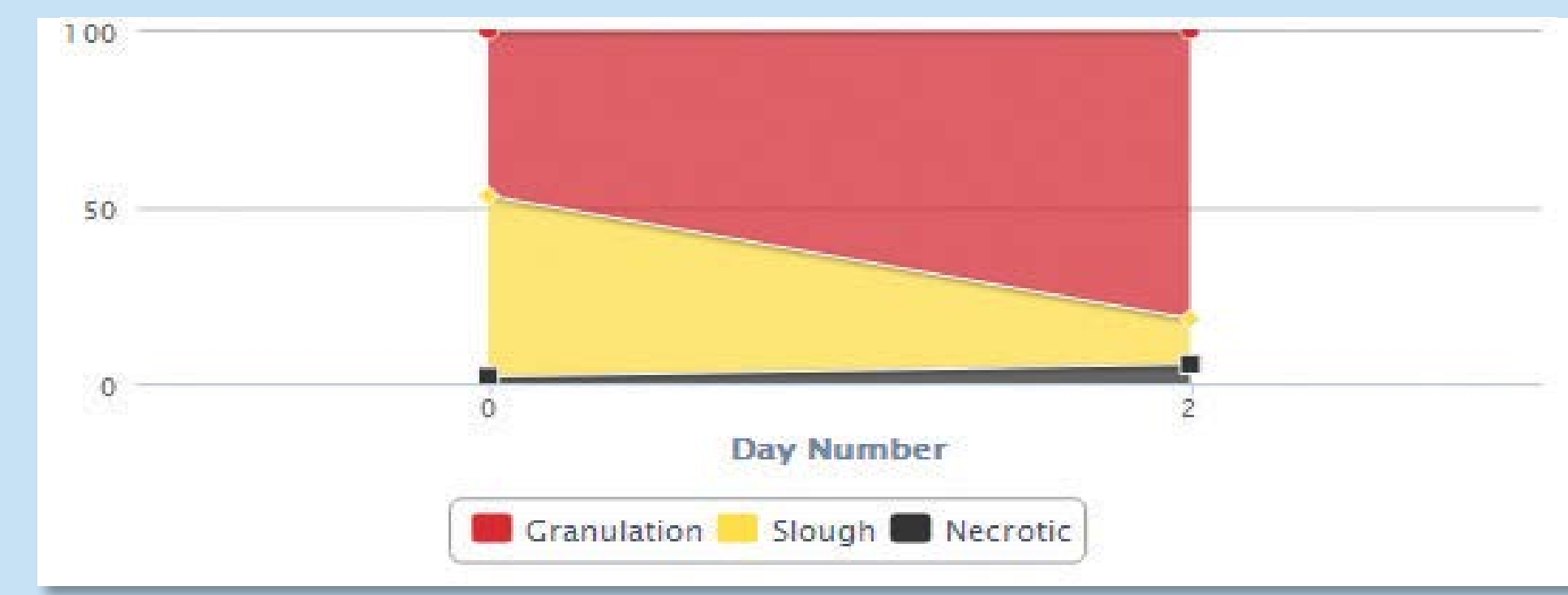
Pressure Ulcer Case Examples

52 y.o. paraplegic man with pressure ulcer right foot unsuccessfully Rx'd



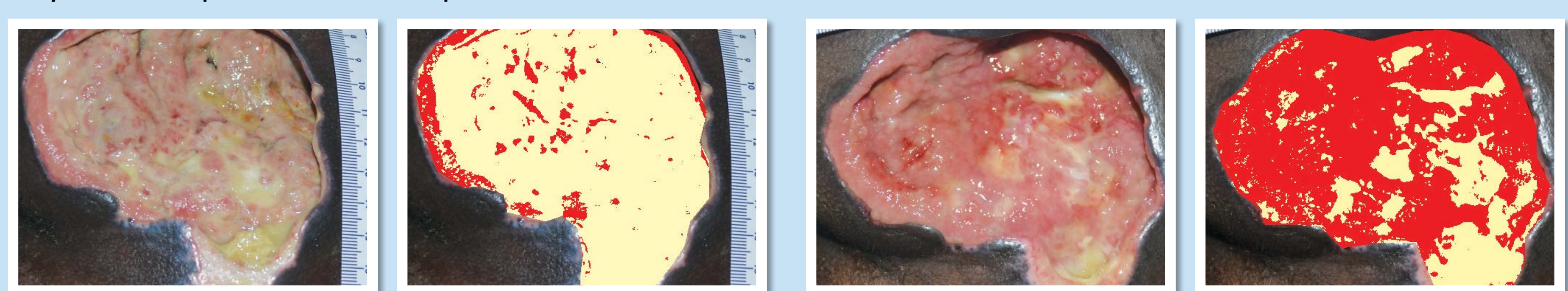
Day 0 photo & scan

Day 2 photo & scan



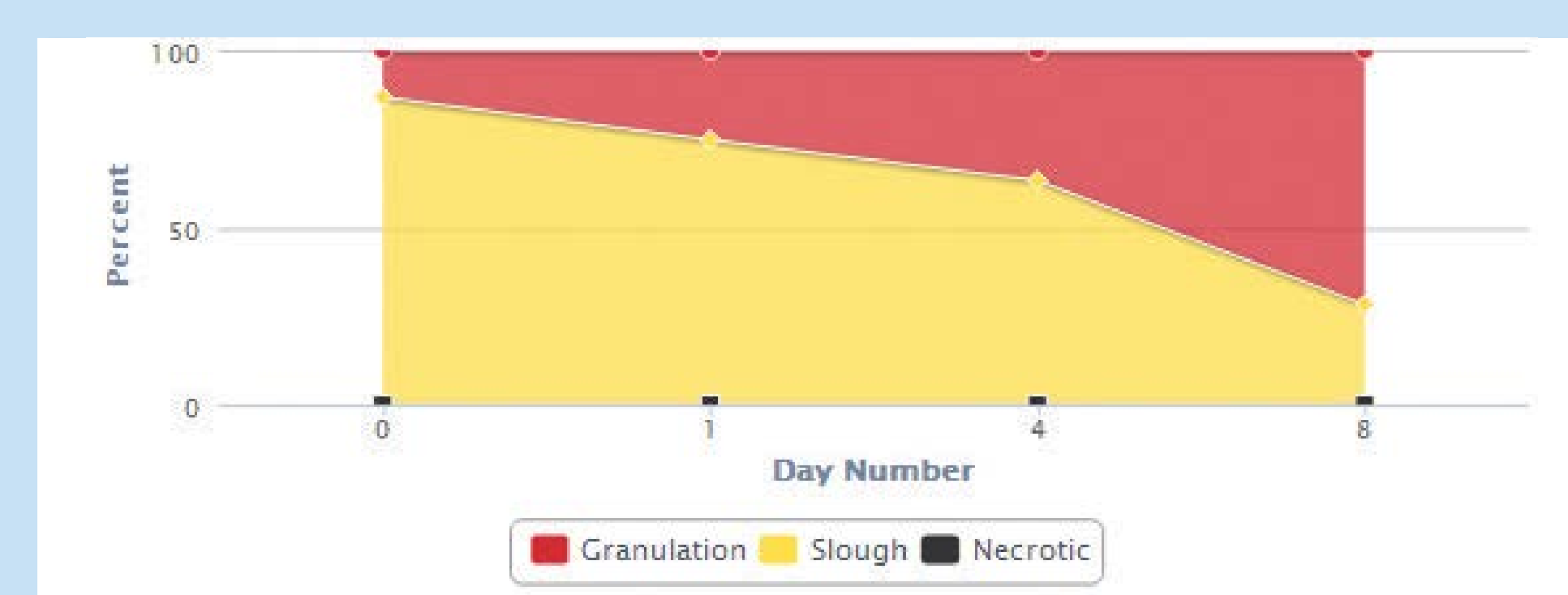
Tissue analysis graph

32 y.o. trauma patient with sacral pressure ulcer treated with NPWT



Day 0 photo & scan

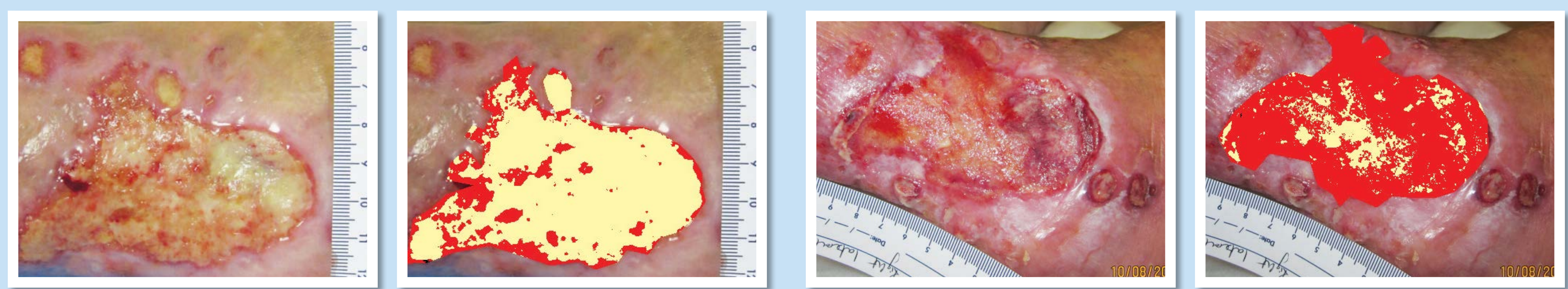
Day 8 photo & scan



Tissue analysis graph

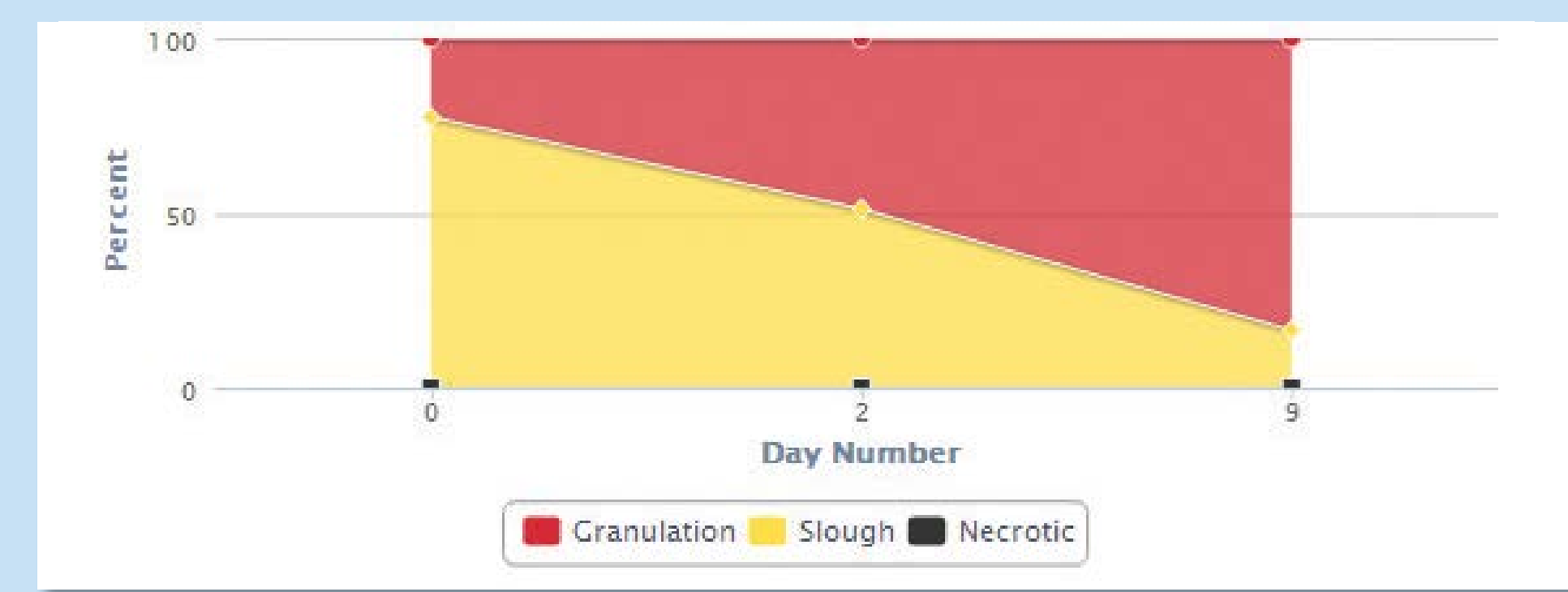
Venous Leg Ulcer case Examples

Male with 7 yr. hx. leg ulcer Rx'd with multiple modalities including NPWT admitted with cellulitis & sepsis.



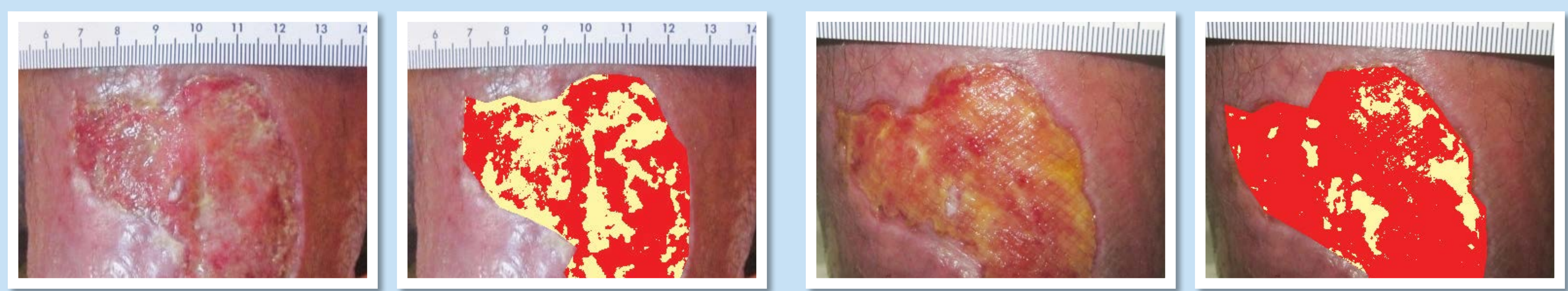
Day 0 photo & scan

Day 9 photo & scan



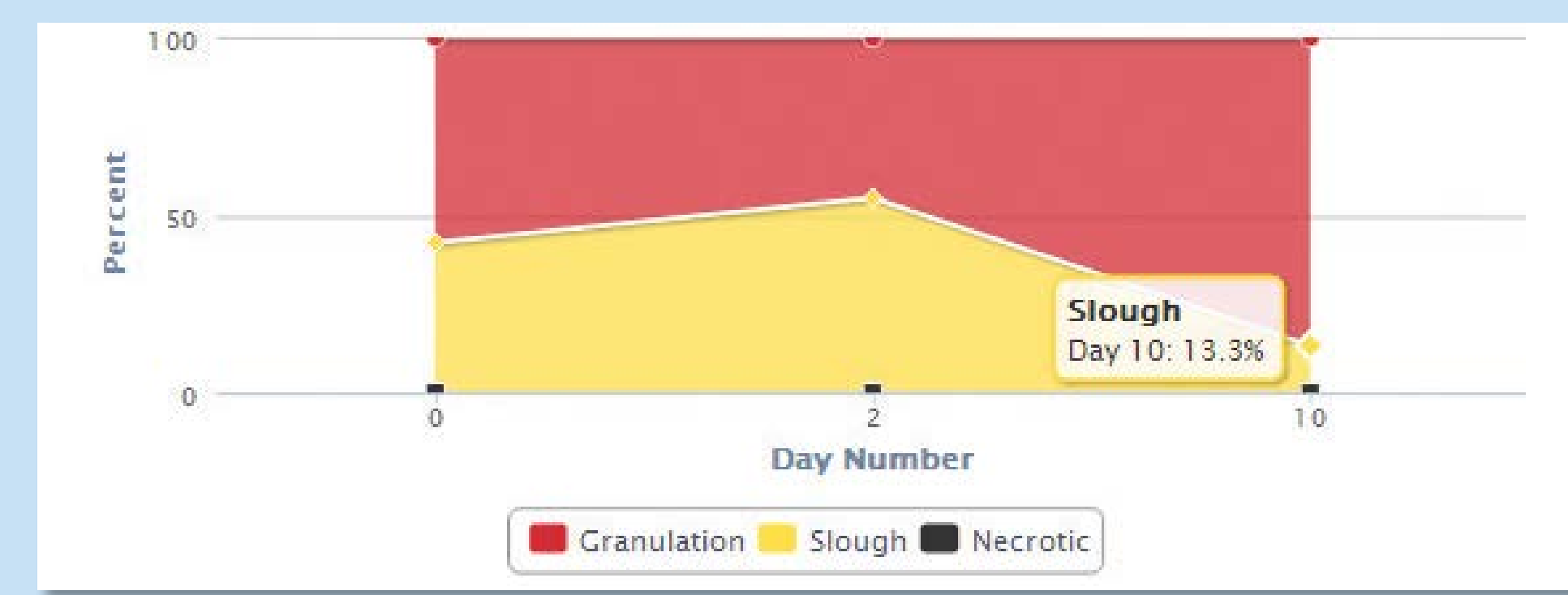
Tissue analysis graph

48 y.o. man with 1 1/2 yr. hx. leg ulcer unsuccessfully Rx'd with multiple types of dressings and antibiotics.



Day 0 photo & scan

Day 10 photo & scan



Tissue analysis graph

* iCLR technology, Elixir, Imago Care Ltd., London, UK
 ** Drawtex, Beier Drawtex, Pretoria, SA

