

**Sixty percent reduction of ulcer area at 2 weeks can be a useful predictor of eventual diabetic foot ulcer healing by 12 weeks**

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## INTRODUCTION:

Percentage Area Reduction (PAR) in wound size is an early predictor of treatment outcome, which could be used to guide treatment pathways. PAR at 4 weeks has been used to assess the likelihood of ulcer healing. Our foot clinic routinely uses a 3D wound imaging system to assess ulcer area during clinic visits.

## METHODS & DATA ANALYSIS:

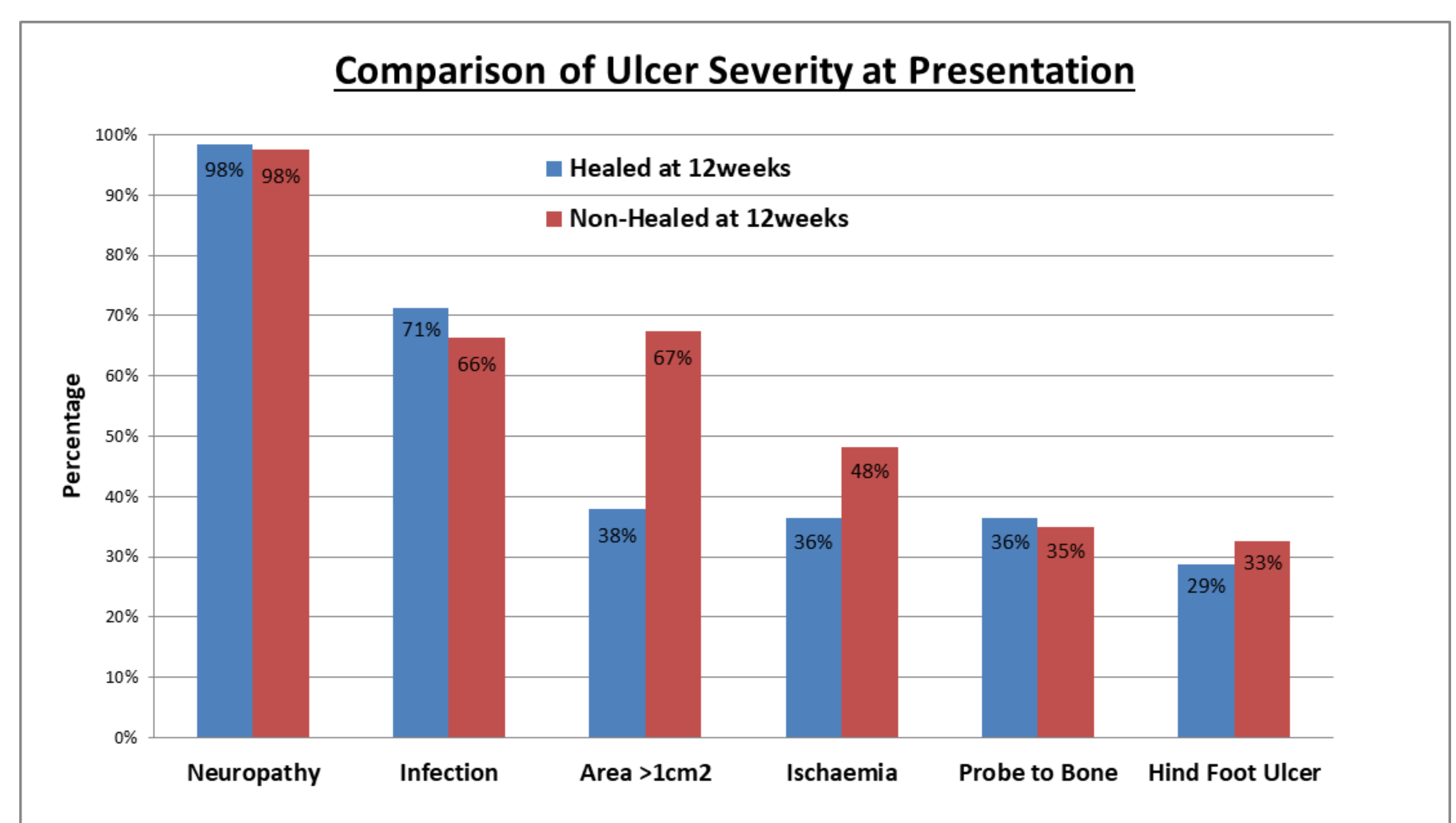
- A retrospective analysis of consecutive new patients attending the clinic with diabetic foot ulcer.
- Patients were divided into two groups. Those with ulcers that healed by 12 weeks and those that did not heal by 12 weeks.
- The proportions of Healed and Non-Healed ulcers were compared with their respective PAR at weeks 2, 4 and 6 of routine follow-up.
- The Median/Mean PAR at each time point was used to test for the probability of ulcer healing at 12weeks.
- Chi-square and Fisher's Exact Test were used to determine which PAR and at which time point was most predictive of eventual 12week ulcer healing.

**AIM:**

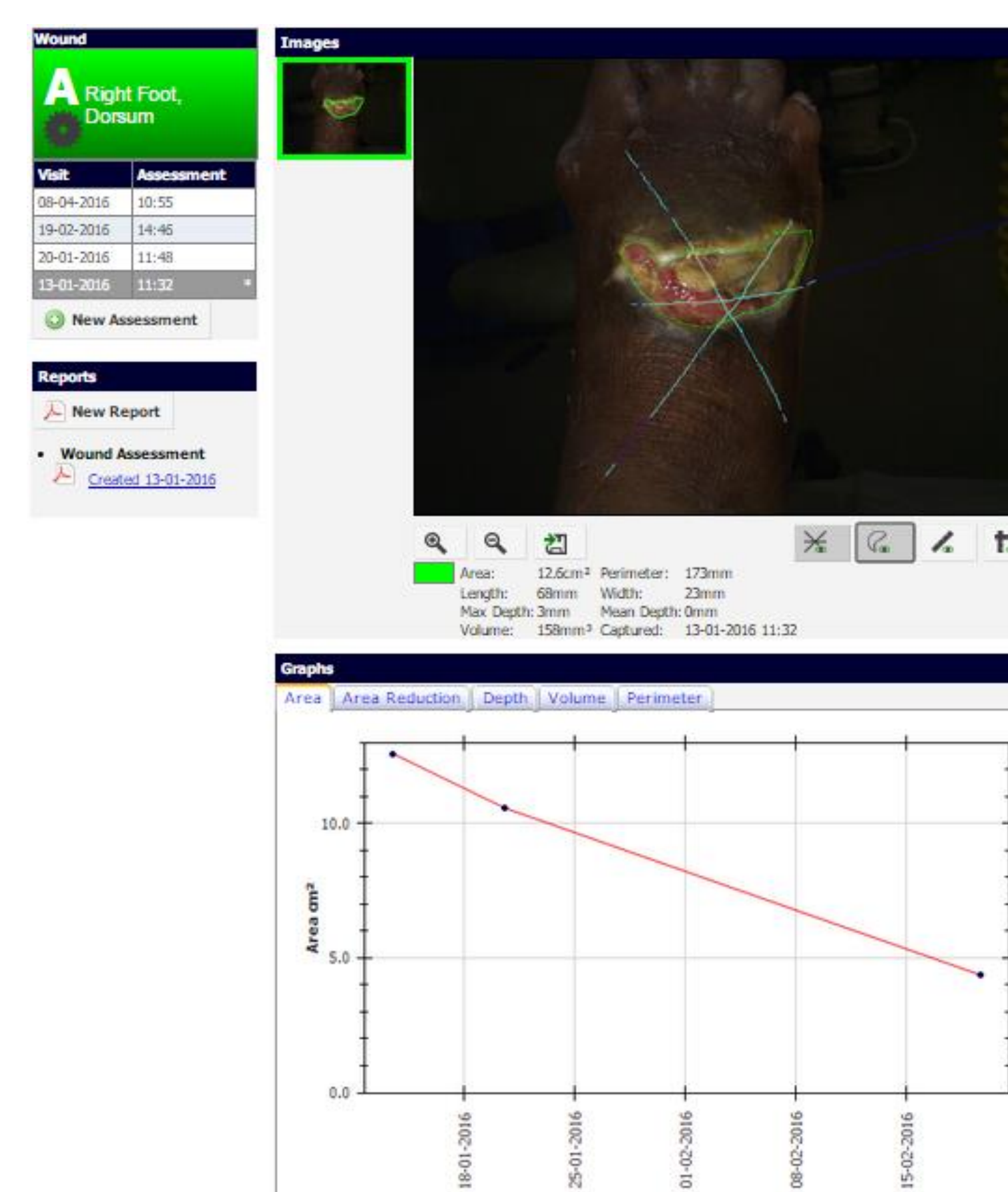
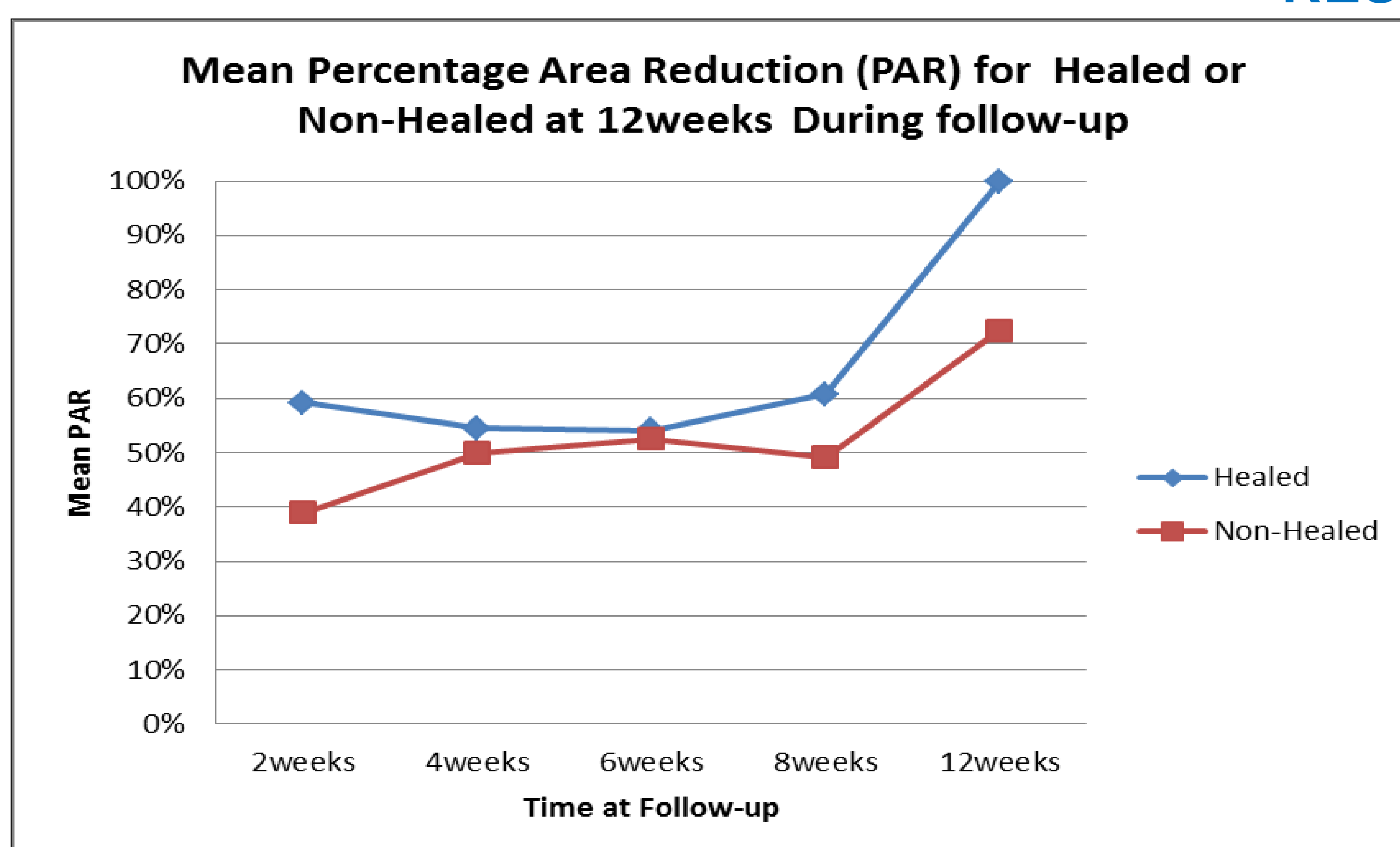
To determine the earliest and best percentage area reduction of predicting complete ulcer healing at 12weeks within routine clinical care.

## PATIENT DEMOGRAPHICS

- 149 new patients were studied
- Mean age was  $65 \pm 13$  years, (Mean  $\pm$  SD);
- 74% were Male
- 86% had Type 2 diabetes



## RESULTS:



From Baseline	Number With Area Data At 2weeks follow-up	Number With Area Data at 4weeks follow-up	Number With Area Data at 6weeks follow-up
Healed by 12weeks N=66 (44%)	N=27 (8 healed before 2weeks) 10/19 had PAR $\geq$ 60% (2 had an increase in size)	N=29 (11 healed before at 4weeks) 6/18 had PAR $\geq$ 50% (5 had an increase in size)	N=5 4/5 had a PAR from baseline
Non-Healed at 12weeks N=83 (56%)	N=25 4/25 had PAR $\geq$ 60%	N=28 10/28 had PAR $\geq$ 50%	N=30 12/30 had a PAR from baseline
Total (149)	Total N=62	Total N=57	Total N=35

At 2 weeks follow-up, the mean PAR of patients who eventually healed at 12 weeks was  $59 \pm 27\%$  and for those who did not heal the mean PAR was  $39 \pm 25\%$ . A 60% area reduction at 2 weeks was a significant predictor of subsequent healing [ $p=0.037$ ]. The use of 50% PAR at 2 weeks was not a significant predictor of healing or not healing at 12 weeks [ $p=0.086$ ].

At 4 weeks follow-up, the mean PAR of patients who eventually healed at 12 weeks was  $55 \pm 26\%$ , (Median 40%) and for those who did not heal the mean PAR was  $50 \pm 29\%$ , (Median 50%). The use of 50% area reduction at 4 weeks was not a significant predictor of subsequent healing [ $p=0.605$ ]. Although a significant proportion of patients did have a  $\geq 50\%$  PAR at 4 weeks, they were not healed at 12 weeks.

## CONCLUSIONS

Percentage Area Reduction (PAR) from baseline can be a useful predictor of diabetic foot ulcer outcome provided the threshold is correctly chosen. The use of 60% or greater percentage reduction in ulcer area at two weeks is a robust predictor of eventual ulcer healing by 12 weeks, and does have the potential to be used for triaging patients within a routine clinical pathway.