

# Benefits Of Utilising Topical Haemoglobin Therapy On 100 Sloughy Wounds Within The Community Setting

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## Abstract

Sloughy tissue containing viscous, malodourous, devitalized cells is renowned for being time consuming to manage, often needs specialist input within its removal and has a devastating effect upon patient's daily activities as a consequence of maceration, malodours and pain. **Method:** 100 sloughy wounds were administered a haemoglobin spray add-on therapy over a four week period. Normal standard wound cleansing and dressing regimens were continued as per pre evaluation with wound care being provided independently or with supervision/support from a designated carer. Data was collected weekly in relation to primary outcomes of slough reduction; wound surface area reduction, patient ease of self-care use and overall product experience. **Results:** At four weeks all wounds had demonstrated slough elimination (100%), continued wound size reduction (99%). 100% of patients and carers found Granulox® easy to use (self-caring) and had a positive wound care experience. **Conclusion:** The administration of a haemoglobin spray to sloughy wounds resulted in positive healing outcomes of slough elimination and wound reduction alongside positive self-care and product and treatment satisfaction.

## Introduction

Wound exudate is a vital element of tissue healing. However, clinicians are often faced with a challenge when it becomes viscous, malodourous and mixed with devitalized wound tissue in the form of slough, which can have a negative impact upon both healing and non-healing wounds. Sloughy wounds are notoriously time consuming to manage, often requiring expert involvement in its removal and can have a unsatisfactory effect upon patients quality of life with its resulting malodours, maceration and wound pain. Wounds deficient in oxygen are often sloughy, with low oxygen levels increasing production of adhesive molecules in the wound. Oxygen is essential in all stages of wound healing, notably for wounds to be able to break down slough and for neutrophils to be able to kill toxin producing bacteria that prevent healing progression (Schreml et al 2010). Based on the positive findings of slough elimination discovered in Bateman 2015a and 2015b, this evaluation further explores the positive impact upon sloughy wounds across all areas of wound pathology inclusive of healing, slow healing and non-healing wounds, with the innovative utilisation of Granulox®, a topical haemoglobin spray.



Rinse as per routine wound cleaning  
Spray with Granulox® from a distance of 5 to 10 cm  
Cover with (any) breathable wound dressing.

## Method

A descriptive evaluation was undertaken within a community setting exploring 100 patients that presented with sloughy healing, slow healing and non-healing wounds, and the effects of eight topically administered haemoglobin treatments over a four week period. Standard wound cleansing and dressing management was continued with no changes to pre evaluation regimens with care being provided by the cohort group independently or carer. Data was collected weekly in regards to primary outcomes of slough reduction; wound surface area reduction, patient ease of self-care use and overall product experience

## Results, Discussion and Conclusions

- At four weeks all wounds had demonstrated slough elimination (100%)
- All patients demonstrated significant wound size reduction (100%) and 75% fully healed by 4 weeks
- Pain scores were substantially reduced, by -57% by week one, -83% by week 2, -89% by week 3
- Patients and carers all found the product easy to use
- Incorporation of Granulox® spray in the treatment pathway for sloughy wound is likely beneficial.

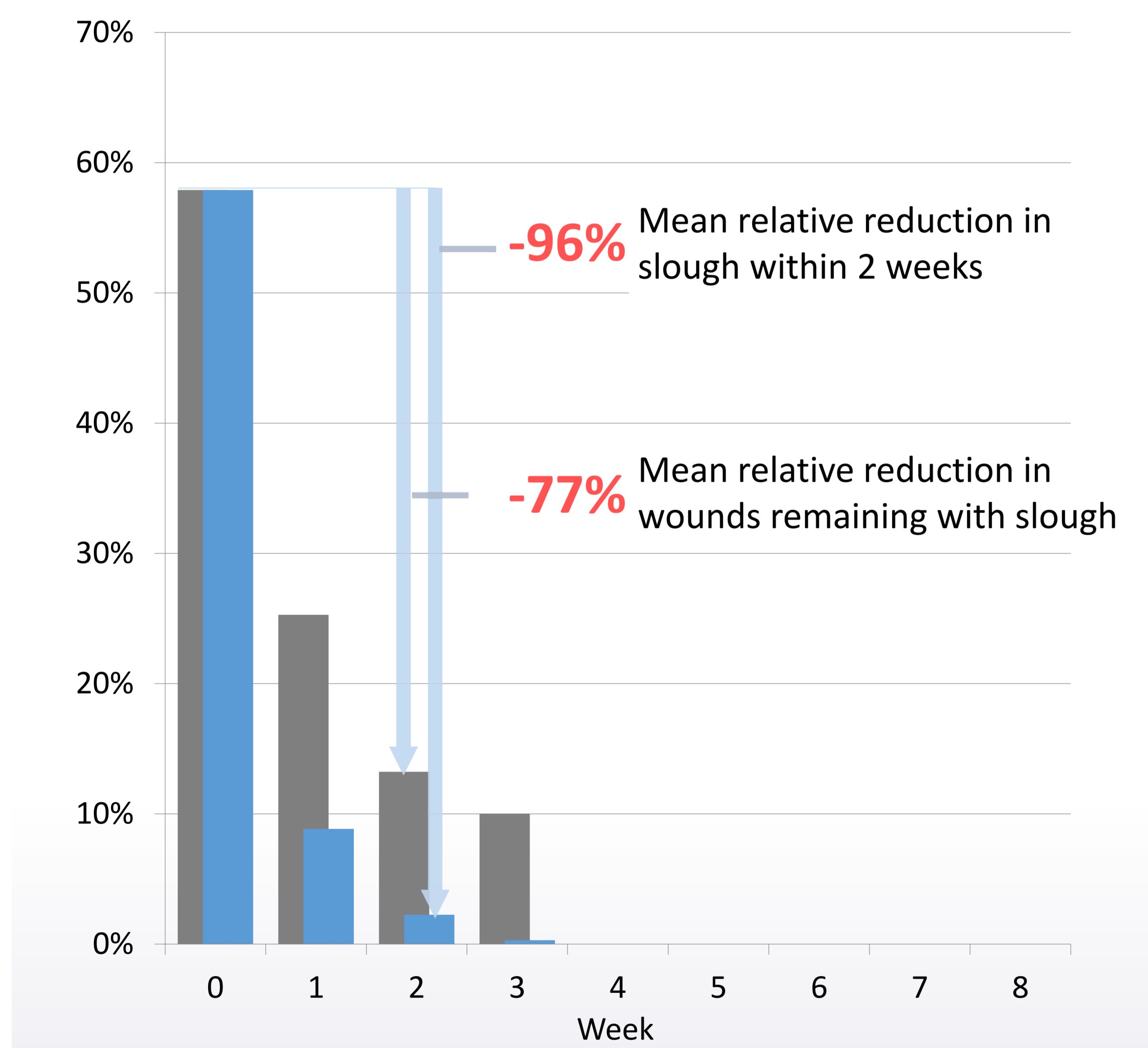


Patients are able to self-apply Granulox®

Arenberger et al (2015) Expected outcomes from topical haemoglobin spray... JoWC 24(5) pp228-236  
Bateman (2015a) Topical haemoglobin spray for diabetic foot ulceration. Br J Nurs. 24(12):S24-9  
Bateman (2015b) Use of topical haemoglobin on sloughy wounds in the community setting. BJCN 20 (Sup9)  
Schreml et al (2010) Oxygen in Acute and Chronic Wound Healing. BrJ Derm. 2010;163(2):257-268.

## 96% reduction in average slough in two weeks

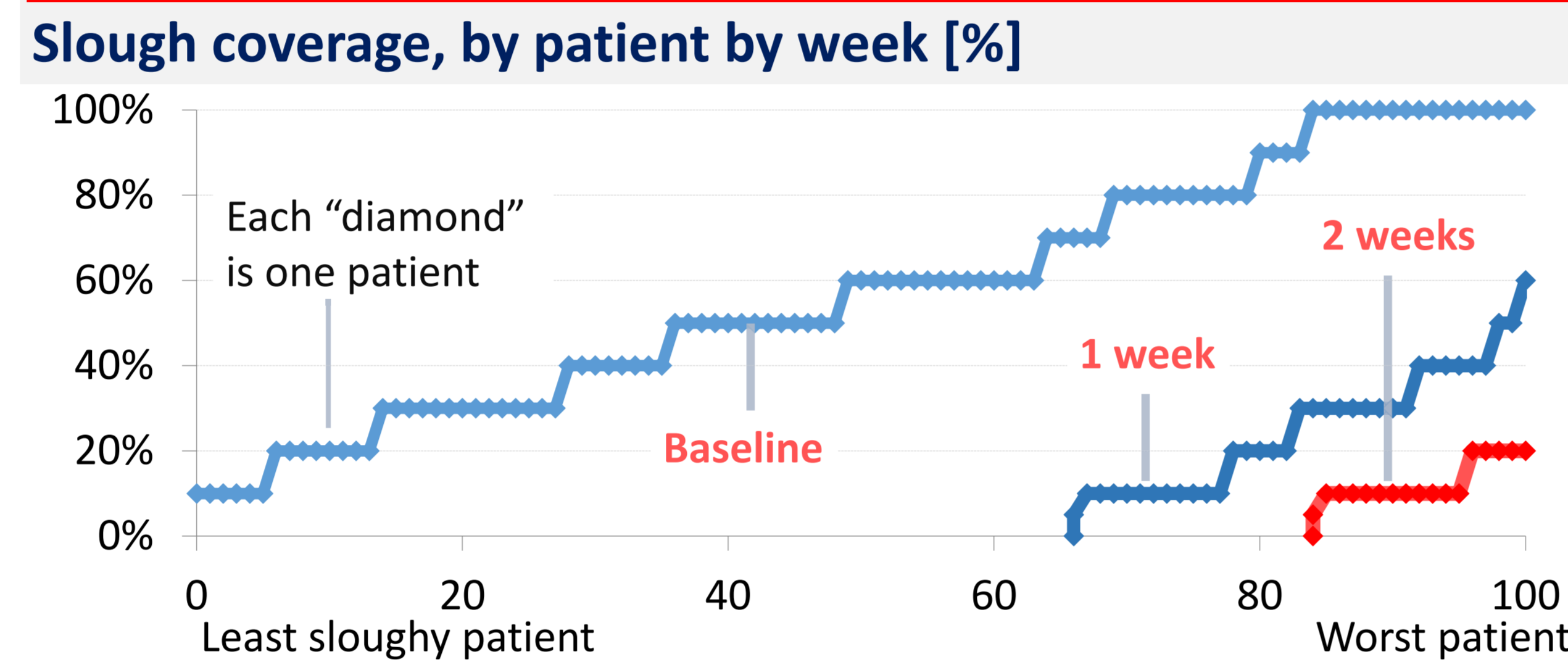
[Mean weekly slough levels, across all wounds, and in wounds remaining sloughy]



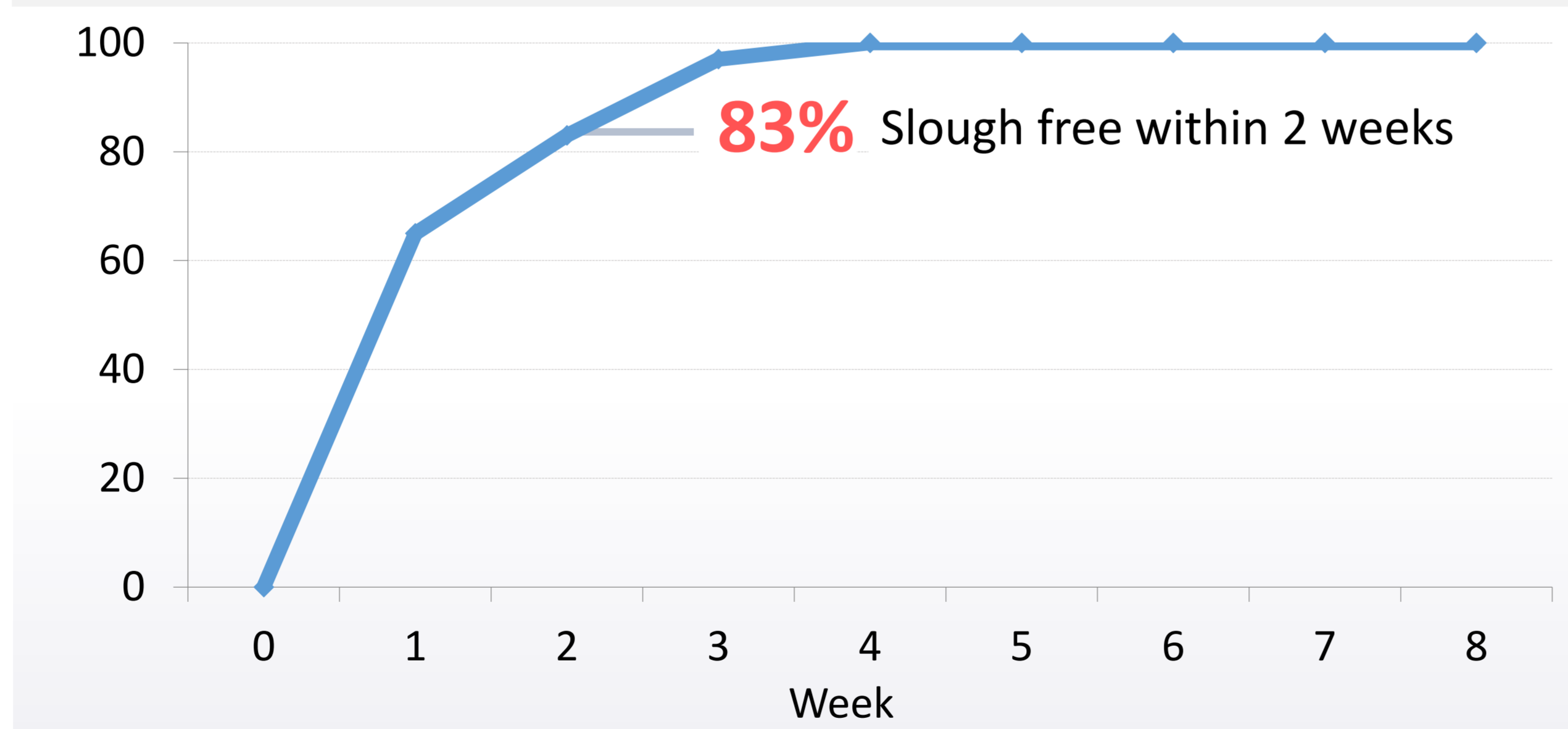
Patients that presented with sloughy healing, slow healing and non-healing wounds, were included in the evaluation and standard wound cleansing and dressing management was continued with no changes to pre evaluation regimens with care being provided by the cohort group. Mean slough levels in the wounds were rapidly reduced, with a mean reduction from 58% mean slough coverage at baseline, to just 2.3% average slough coverage by week two. For the wounds which were remaining slough covered, the extent of slough coverage was also greatly reduced, to an average of just 13%.

## 83% slough free in two weeks, 100% in four

[Slough by patient by week 0,1,2 and slough free patients by week, All patients]



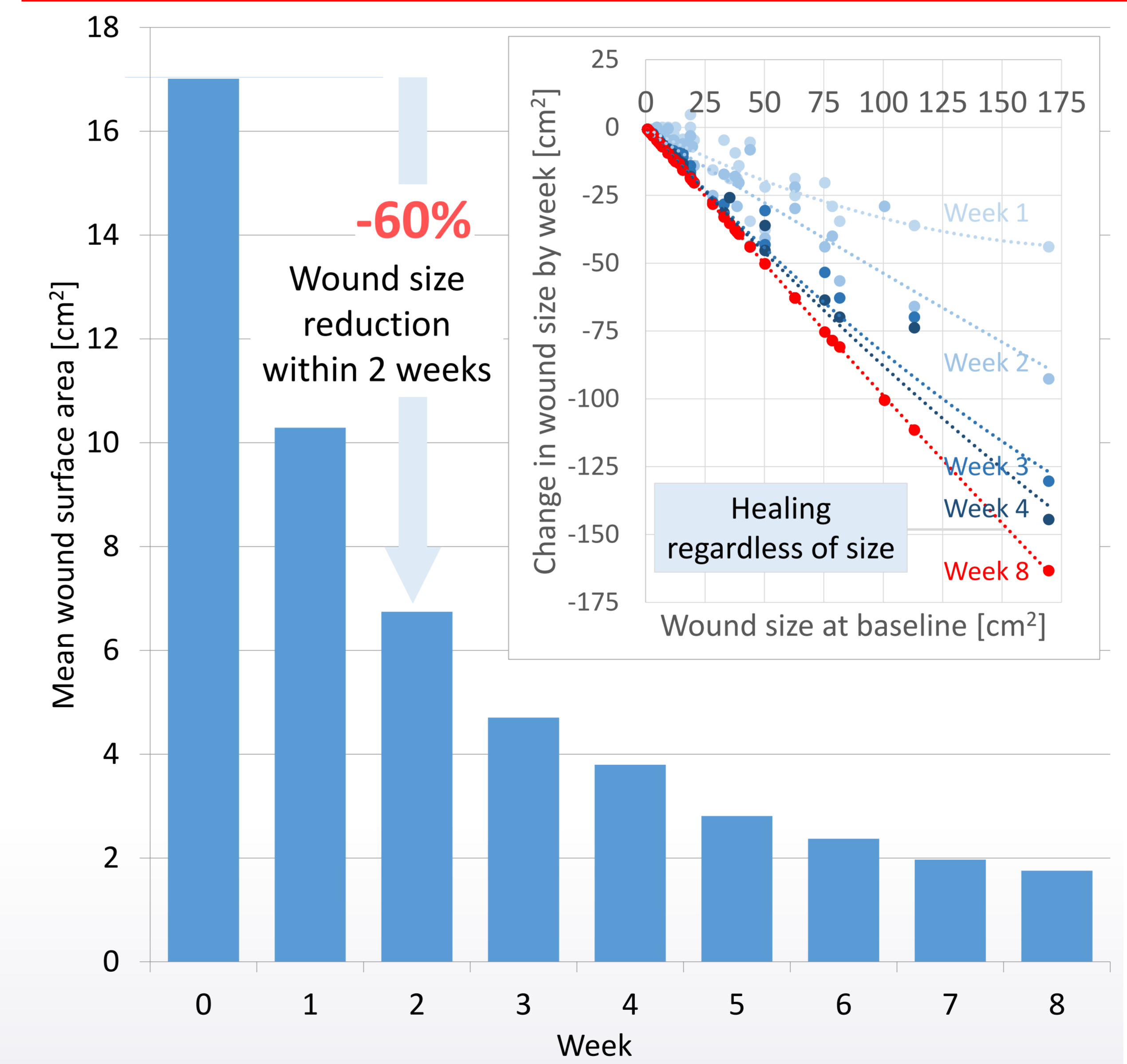
## Patients, slough-free by week



In Bateman 2015a and 2015b it was noted that patients were slough free by week four and it was suggested a larger study be completed to evaluate how reliable this slough clearance would be in a representative wound population. Correspondingly in this study, of all 100 sloughy wounds evaluated with Granulox therapy as add-on, 65% of patients were slough free within one week (2 applications of Granulox®, 83% slough free within 2 weeks (4 applications of Granulox®), 97% were slough free at three weeks (6 applications of Granulox®) and 100% were slough free by 4 weeks (8 applications of Granulox®).

## 60% wound size reduction within two weeks

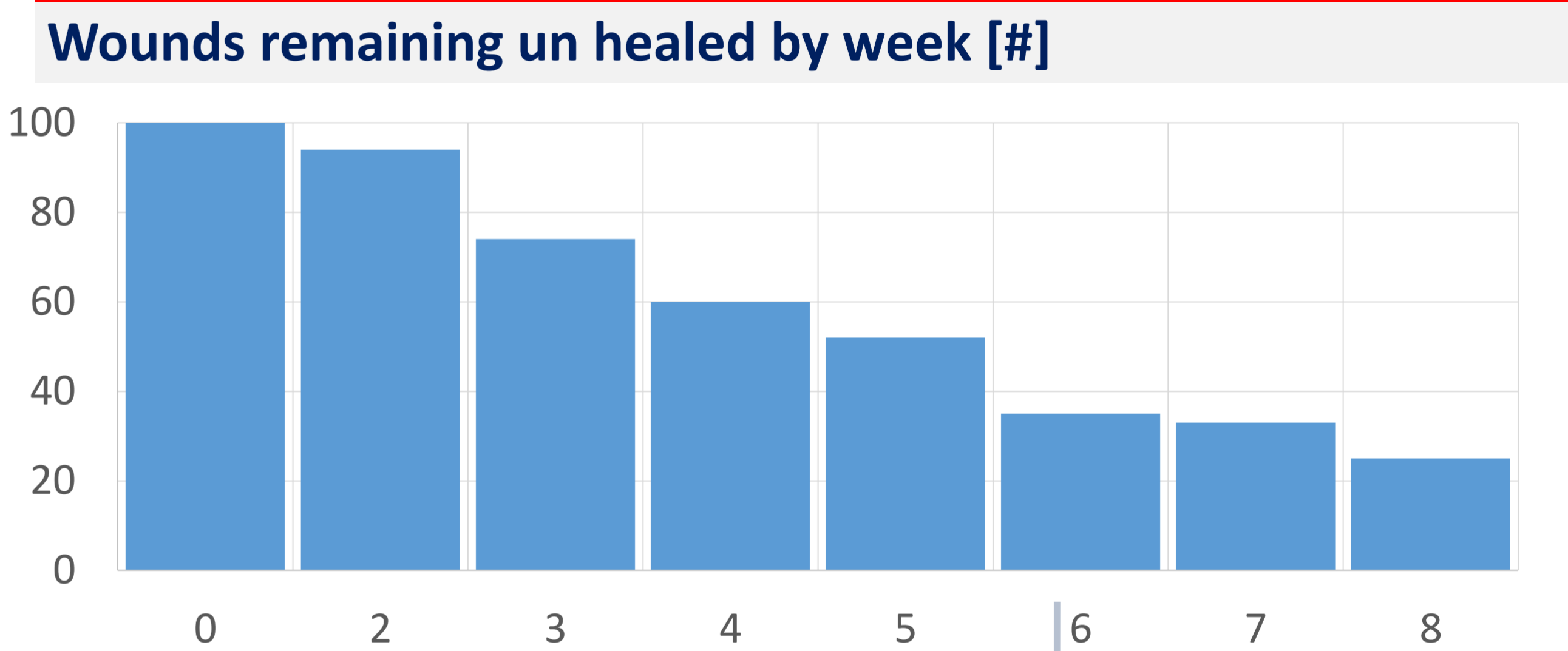
[Mean wound size by week and wound size change by baseline wound size, cm²]



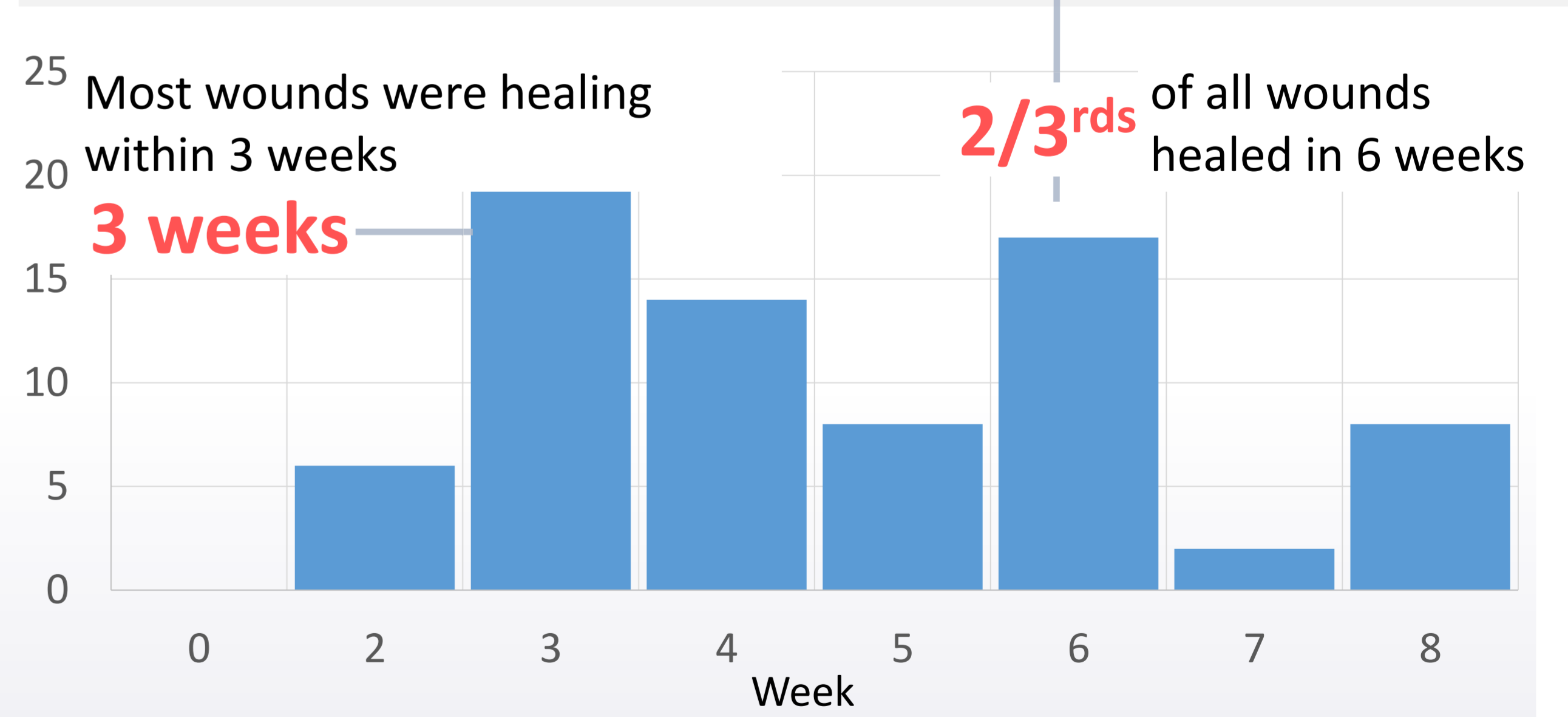
Previous studies have demonstrated the reliable healing response rates and improved healing speeds of Granulox® in leg ulcers, foot ulcers, pressure ulcers, burns, and post surgical wounds e.g. Arenberger, Elg, Cutting, Petyt (2015). This study included wounds of all aetiologies, including wounds persistent only for a week but with healing complications putting them at risk of becoming chronic – or worse. The observed average wound size reduction at weeks 1,2,3,4,5,6,7, and 8 were respectively -40%, -60%, -72%, -78%, -83%, -86%, -88%, -90% with a reliable healing response achieved across all patients.

## Healing mode at 3 weeks, 75% within 8 weeks

[Wound size reduction and wound healing by week, all 20 patients]



## Time to wound closure, for 75 wound closed in 8 weeks [wks]



No dressing or off-loading regimens were changed, with Granulox® the only adjustment to their treatment. Despite persisting for more than 3 months prior to Granulox®, 5 wounds fully healed within 4 week and 8 within 8 weeks, with average size reductions of -62% and -78% respectively. Wounds closed by Week 4 were on average 2.6cm² at baseline and were persistency for 3-4 months. The three additional wounds healed by week 8 were 1.2cm² and had persisted for 4-5 months. The 5 largest (avg. 12.7cm²) and 5 most persistent (avg. 12 mths) reduced by -72% and -51% respectively at 8 weeks.