

# Healing Times of Pressure Injuries and Diabetic Ulcers Following Two Years of Digital Wound Care Use

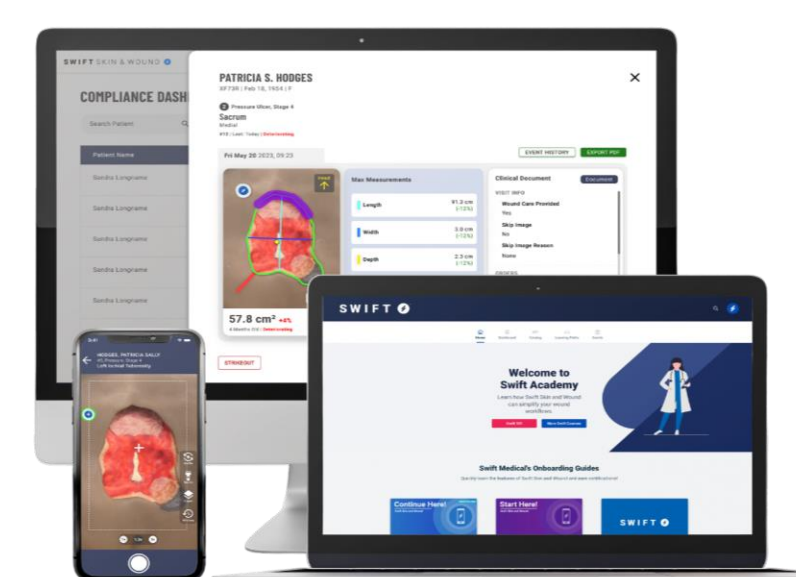
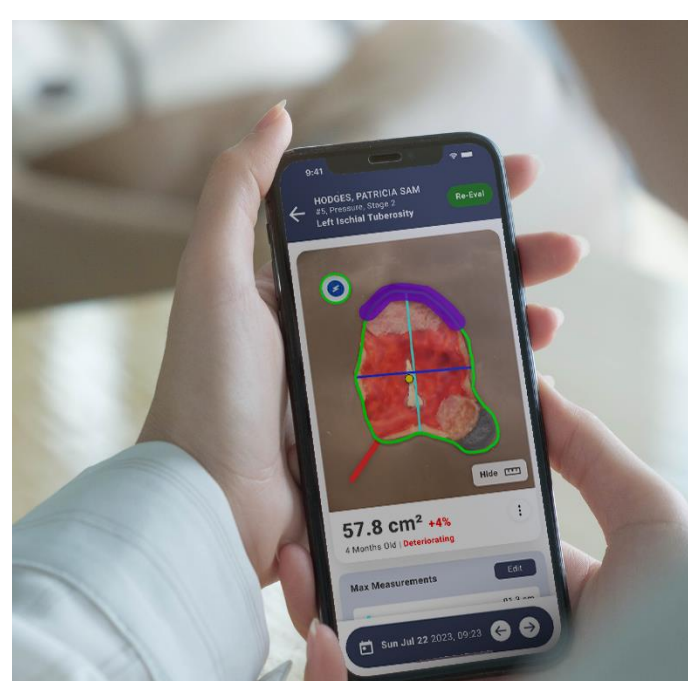


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## Introduction

- Pressure Injuries (PI) and Diabetic Ulcers (DU) are major health issues in home healthcare (HH), with PI prevalence estimated at up to 25%<sup>1</sup> and 19-34% higher risk of DU among individuals with diabetes,<sup>2,3</sup> and both are associated with serious complications including infection, hospitalization and high mortality, with 5-year mortality rates reaching 50-70% for DU.<sup>2</sup>
- Healing times for pressure injuries (PI) and diabetic ulcers (DU) are underreported in home healthcare settings, with no standardized benchmarks for healing trajectories,<sup>1</sup> highlighting the need for digital wound care solutions that enable standardized assessment, documentation, and longitudinal tracking.<sup>4,5</sup>
- Despite this growing adoption, real-world evidence linking DWCS use to healing time, early improvement, and wound size reduction remains limited, particularly across large, multi-agency HH populations.<sup>6</sup>



## Objective

- This study aimed to determine the average healing time for PIs and DUs in home healthcare (HH) settings, comparing outcomes between 2022 and 2023 following DWCS (Skin & Wound, Swift Medical Inc.) adoption, with wounds categorized by healing duration (<3 months versus ≥3 months).
- The study explored the proportion of area reduction and improvement in non-healed but improving wounds.

## Methodology

**Study Design:** Retrospective descriptive study analyzing wound healing times using validated DWCS data from 50+ US HH organizations that adopted the solution in 2021 through 2023.

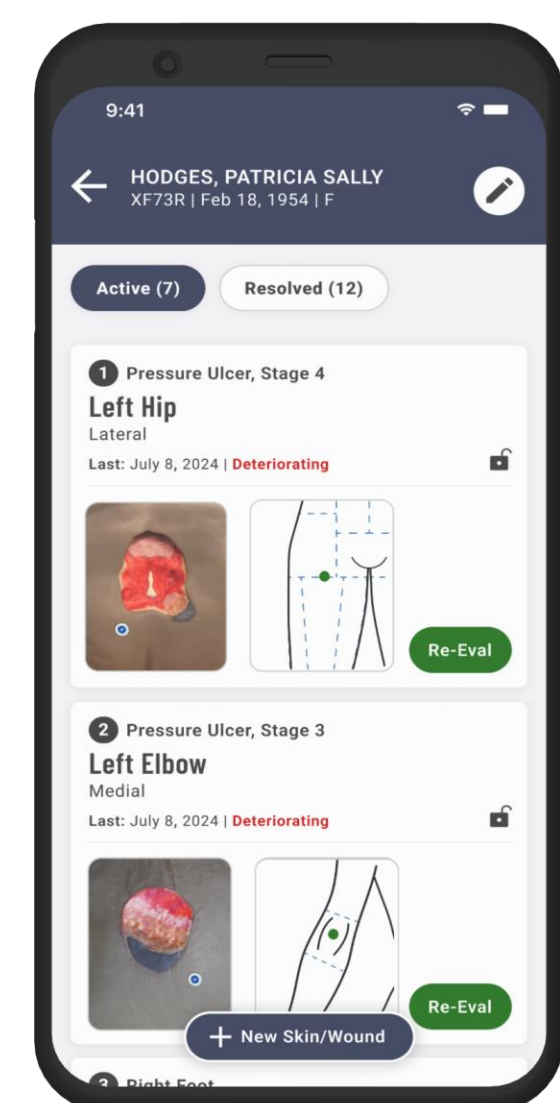
**Data Collection:** Adult patients with PI and DU assessed in HH settings during 2022 and 2023, with complete wound area measurements and documented healing status. Wounds were categorized by healing duration (< 3 months vs ≥ 3 months).

### Sample:

- PI:** 35,364 wounds (10,570 in 2022, 22,794 in 2023).
- DU:** 11,021 wounds (4,007 in 2022, 7,014 in 2023).

### Outcomes:

- Healed:** Wound area=0 with complete re-epithelialization.
- Improved (non-healed):**
  - Evaluated by area reduction and time to first measurable improvement.
  - DU wounds with 40-50% area reduction were classified as improved.



## Results

### Patient Demographics (2022-2023)

#### Pressure Injury

- N = 10,209** (25.7% healed)
- Female: **51.7% → 54.4%**
- Mean age: **76.8 → 78.8 years**
- No significant year-to-year distribution differences

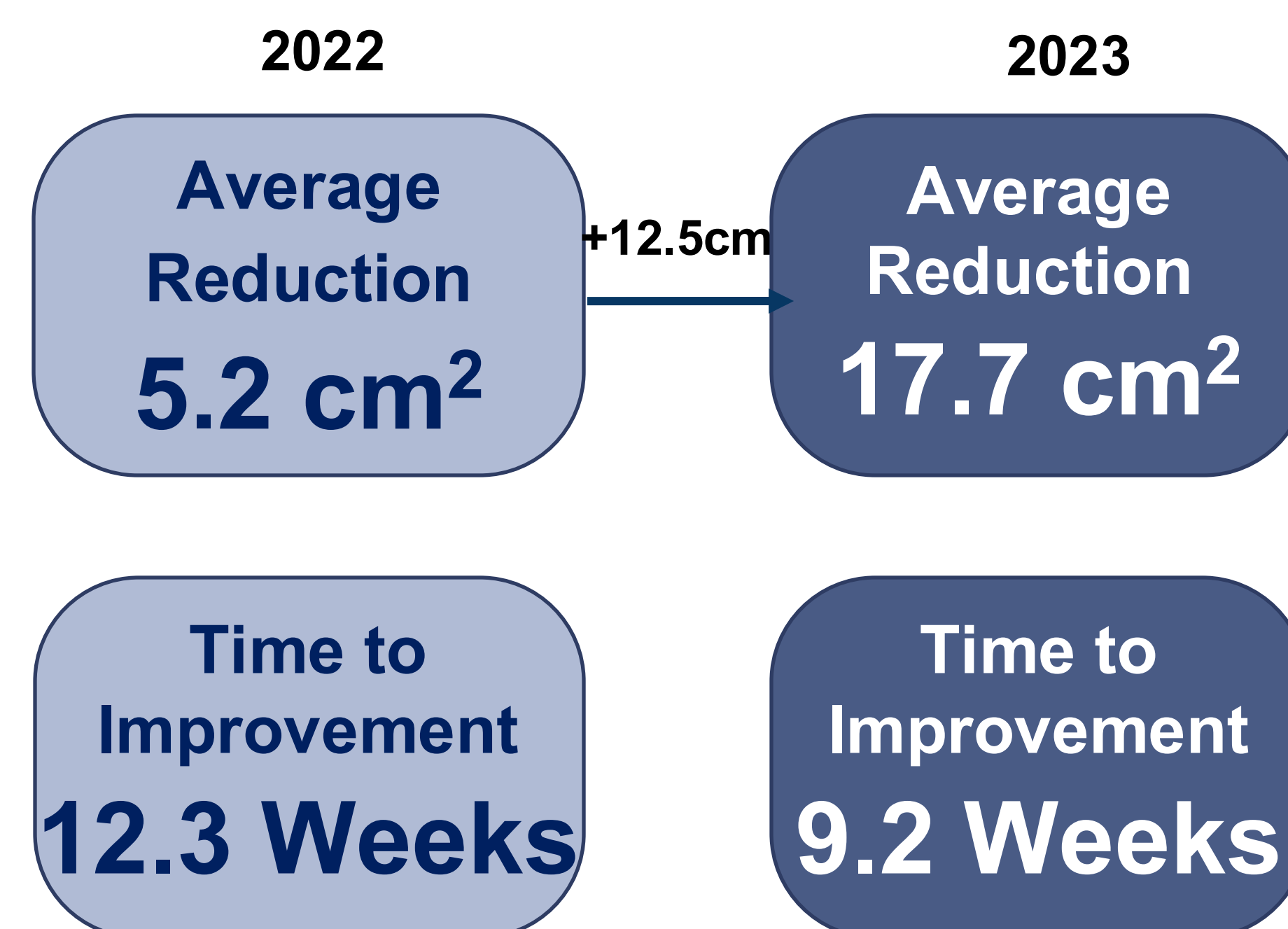
#### Diabetic Ulcer

- N = 2,368** (21.5% healed)
- Female: **35.1% → 29.0%**
- Mean age: **68.8 → 68.1 years**
- No significant year-to-year distribution differences

Population Characteristics were stable across years, supporting comparability of healing outcomes

### Wound Area Reduction Performance Comparison (Non-healed, Improved)

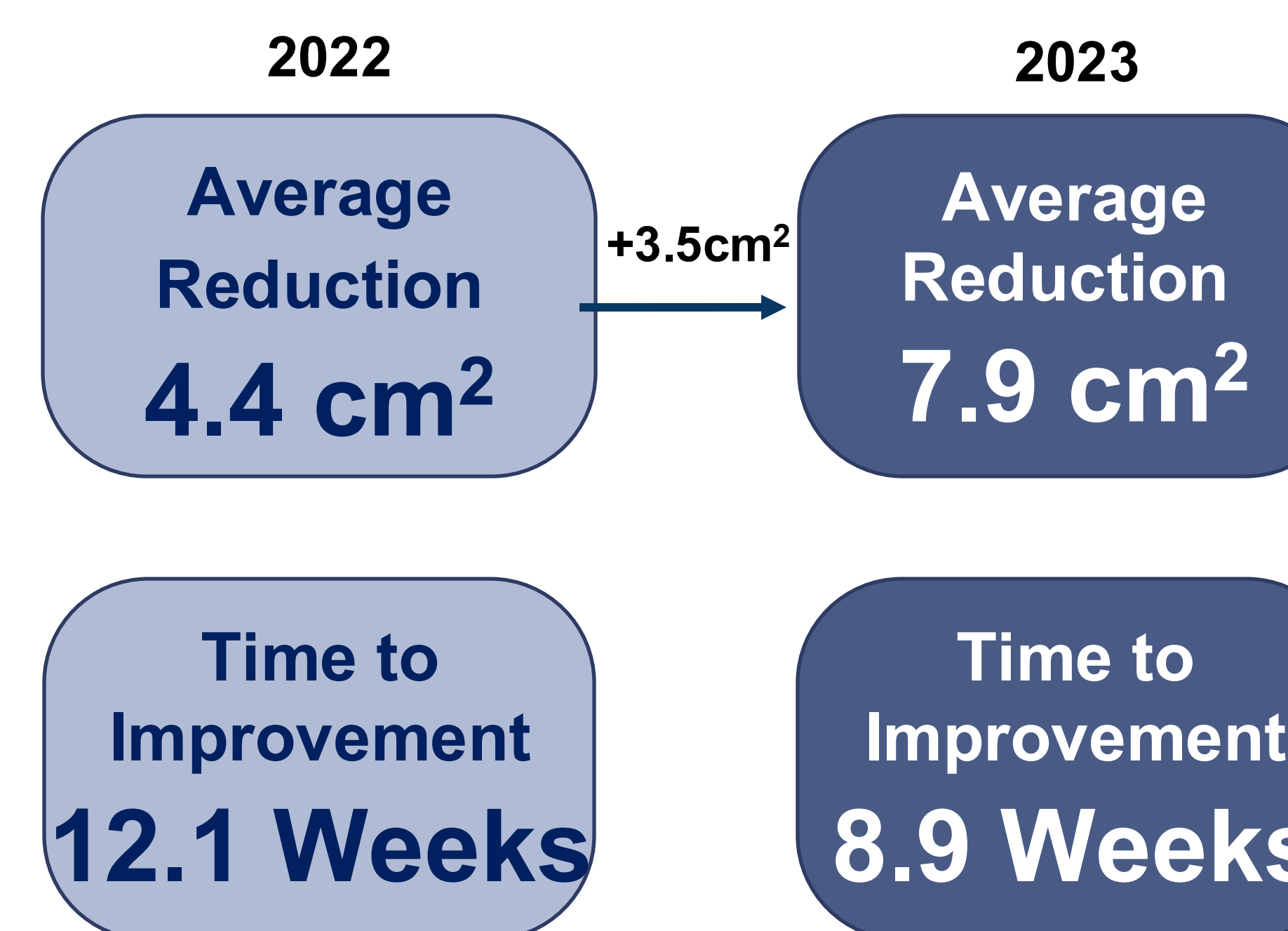
#### Pressure Injury



**Year-over-Year Improvement +240%**  
Greater Area Reduction

**25%**  
Faster Healing Time

#### Diabetic Ulcer

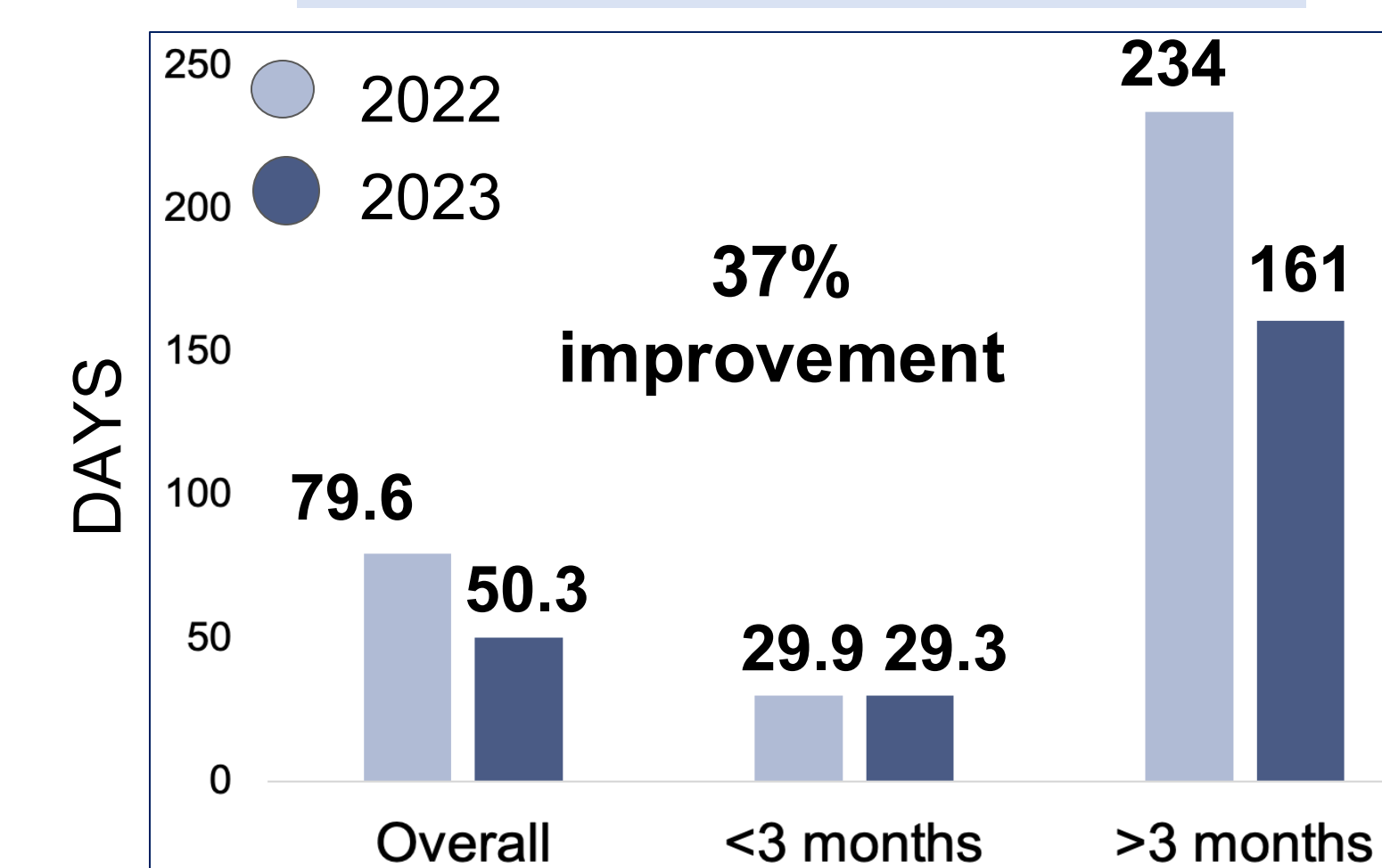


**Year-over-Year Improvement +80%**  
Greater Area Reduction

**26%**  
Faster Healing Time

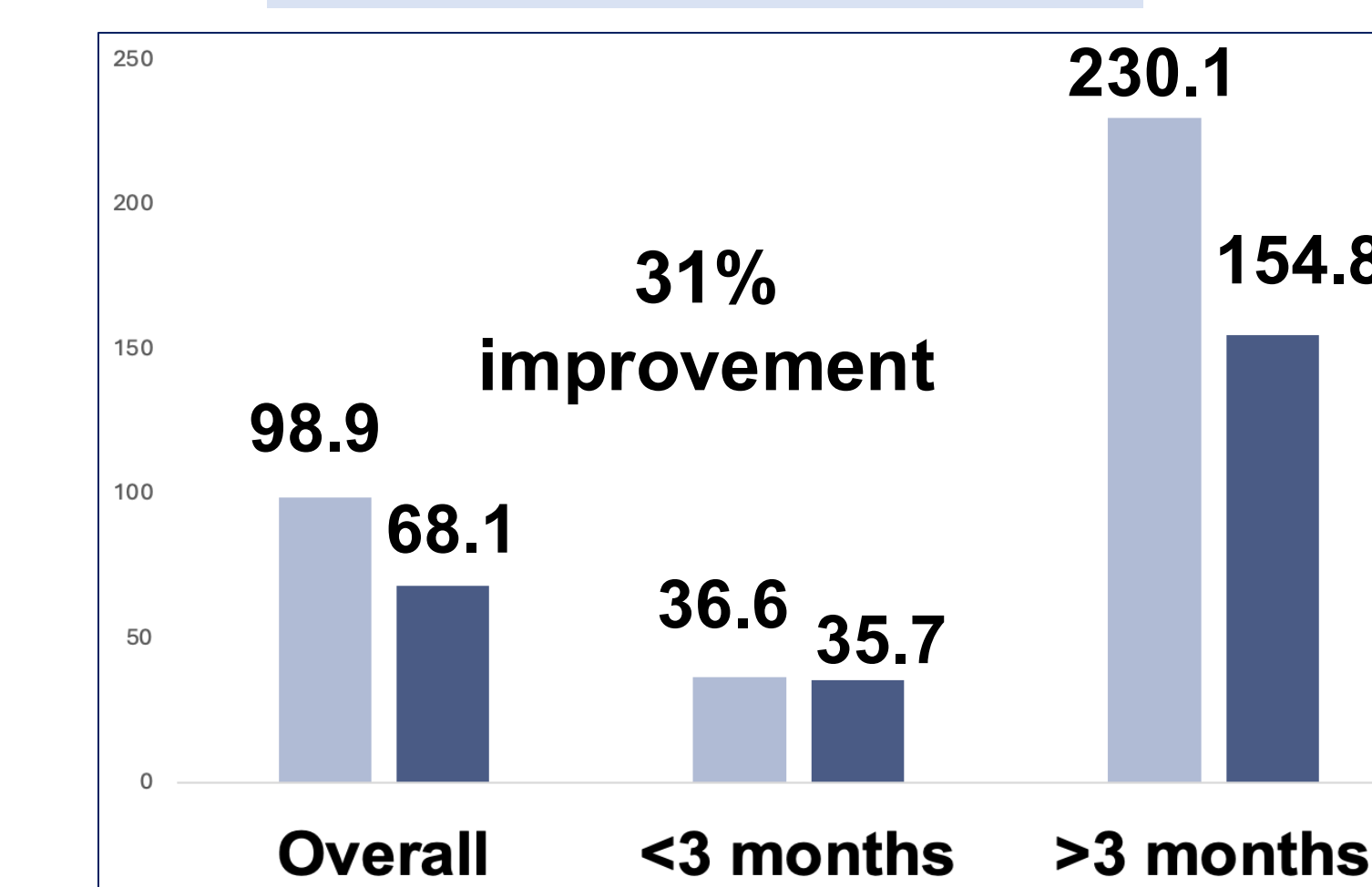
### Healing Time Outcomes (2022-2023)

#### Pressure Injury



PI overall healing time improved by 36.8%, decreasing from 79.6 to 50.3 days (-29.3 days; P<0.001), PIs healing >3 months showing a further 73.2-day reduction (P< 0.001).

#### Diabetic Ulcer



DFU healing time improved 31.1% (98.9 to 68.1 days, -30.8 days, P< 0.001), with >3-month cases showing 75.3-day reduction (P< 0.001).

### Clinical Examples<sup>66</sup>

#### Pressure Injury



PI on the dorsum of the left foot showing significant healing within 88 days, reducing from 4.5 cm<sup>2</sup> with irregular margins, and necrotic tissue to 0.18 cm<sup>2</sup> (96% reduction) with re-epithelialization, resolved inflammation, and minimal scarring.

#### Diabetic Ulcer



Diabetic foot ulcer improved significantly over 39 days, reducing from 2.07 cm<sup>2</sup> (0.1 cm depth, open tissue, active inflammation) to 0.3 cm<sup>2</sup> with granulation tissue formation and resolved inflammation, demonstrating successful healing progression.

## Discussion

- The consistency of digital wound monitoring accelerates wound healing, especially for larger, more complicated wounds, which indicates that earlier detection of significant changes in wounds facilitates timely clinical intervention, thus provides appropriate treatment to patients faster.
- Greater year-over-year gains in area reduction alongside shorter time to improvement indicate improved clinical responsiveness, not just faster closure, supporting DWCS as a tool for earlier decision-making and escalation in routine home health practice.
- The findings demonstrate that sustained adoption of AI-driven wound care can support long-term clinical efficiency, enabling HH organizations to manage complex wounds at scale without increasing resource intensity.

## References

- Wu S, Driver VR, Wrobel JS, Armstrong DG. Foot ulcers in the diabetic patient, prevention and treatment. *DOAJ: Directory of Open Access Journals*. 2007;3(1):65.
- McDermott KM, Fang M, Boulton AJM, Selvin E, Hicks CW. Etiology, epidemiology, and disparities in the burden of diabetic foot ulcers. *Diabetes Care*. 2022;46(1):209. doi:10.2337/dci22-0043.
- Palese A, Luisa S, Illenia P, et al. What is the healing time of Stage II pressure ulcers? Findings from a secondary analysis. *Adv Skin Wound Care*. 2015;28(2):69-75.
- Mote DG, Mote SD. Diabetic foot infections and management: A rural Indian perspective. *Int J Biomed Res*. 2015;6(9):705. doi:10.7439/ijbr.v6i9.2481.
- Perez-Favila A, Martinez-Fierro ML, Rodriguez-Lazalde JG, et al. Current therapeutic strategies in diabetic foot ulcers. *Medicina*. 2019;55(11):714. doi:10.3390/medicina55110714.
- Mohammed, H. T., Fraser, R. D. J., & Cassata, A. (2025). *Impact of digital wound care solution on healing time: A descriptive study in home health settings*. *PLOS Digital Health*, 4(5), e0000855. <https://doi.org/10.1371/journal.pdig.0000855>

