

Evaluating the Efficacy and Financial Impacts of Integrating AI-Powered Skin and Wound Solution in Post-acute Care Skilled Nursing Facilities Over a Three Year Period (2021-2023)

Heba Tallah Mohammed,¹ Laura Peterson,² Amy Cassata,¹ Jackie Mitchell,¹ Cheri Shippy,³ Robert Fraser^{1,4}
¹ Swift Medical, ² RecoverCare Heartland, ³ Point Click Care, ⁴ Arthur Labatt Family School of Nursing, Western University



Overview

The Pressure Injury Challenge

- Pressure injuries (PIs) are a major acquired, yet avoidable, complication across clinical settings,^{1,2} estimated to impact 1.3-3 million adults in the US annually.³
- The cost of treatment of each PI in the US ranges between \$500 - \$70,000, depending on the stage,^{4,5} which accounts for at least 3.6% of the annual health setting budget.⁶

Digital Technology in Wound Care Model

- RecoverCare Heartland (RecoverCare), a prominent post-acute care provider, operates 28 skilled nursing facilities (SNFs) in Kansas City, US, providing top-notch care to patients.
- To promote efficient interdisciplinary wound care coordination and a collaborative network within its facilities, RecoverCare has partnered with Swift Medical, an artificial intelligence (AI)-based wound care management solution, and integrated its technology in its operations.
- Swift Medical's solution enables standardized wound assessment that accurately measures wounds and track healing factors to optimize care management plans.



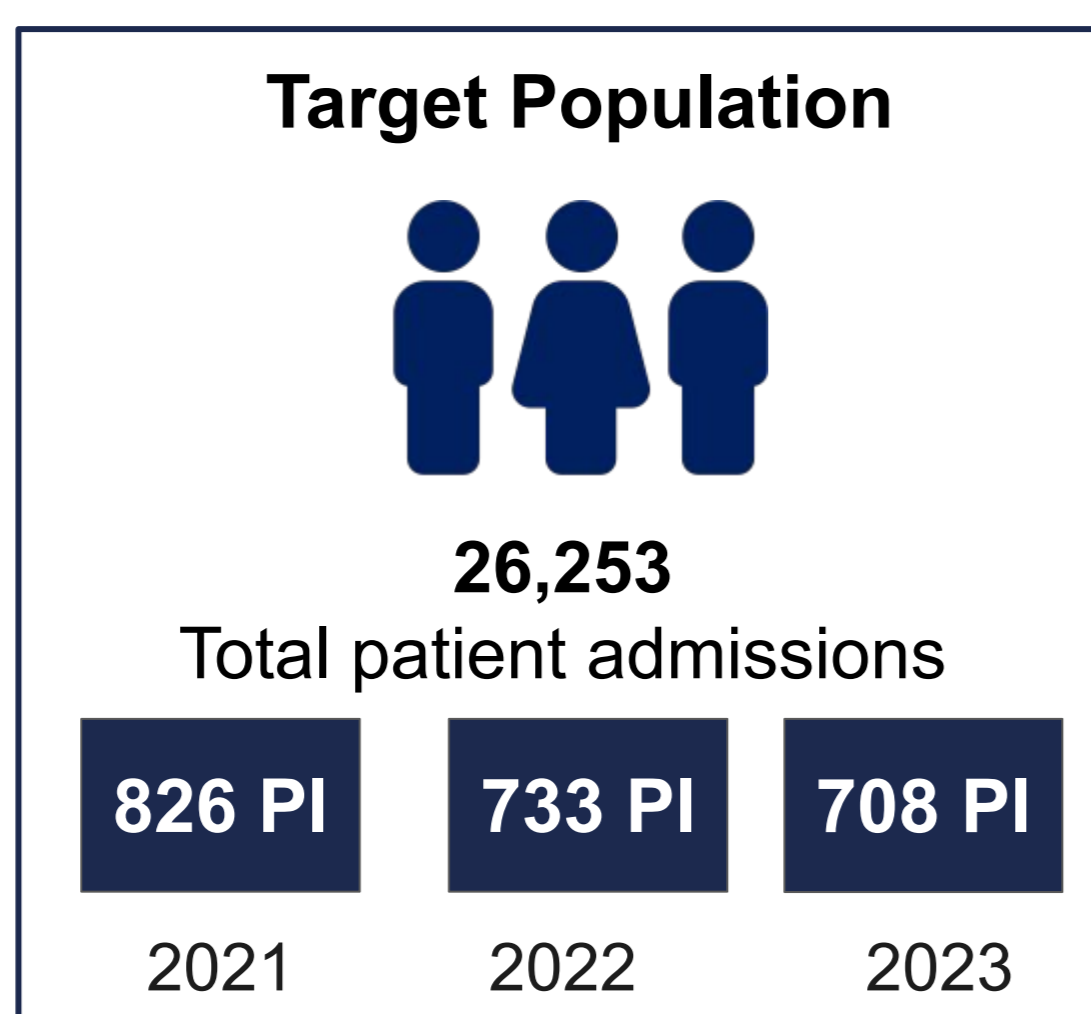
Objective

- The goal of this research was to explore how the adoption of Swift Medical technology has impacted the outcomes of patients with PIs in these SNFs, and whether there have been any noticeable improvements in clinical outcomes.
- This study aimed to compare the prevalence and incidence rates of PIs, healing time, hospitalization rates and volume of F-686 citations across 26 SNFs that had incorporated Swift Medical technology into their operations.

Methodology

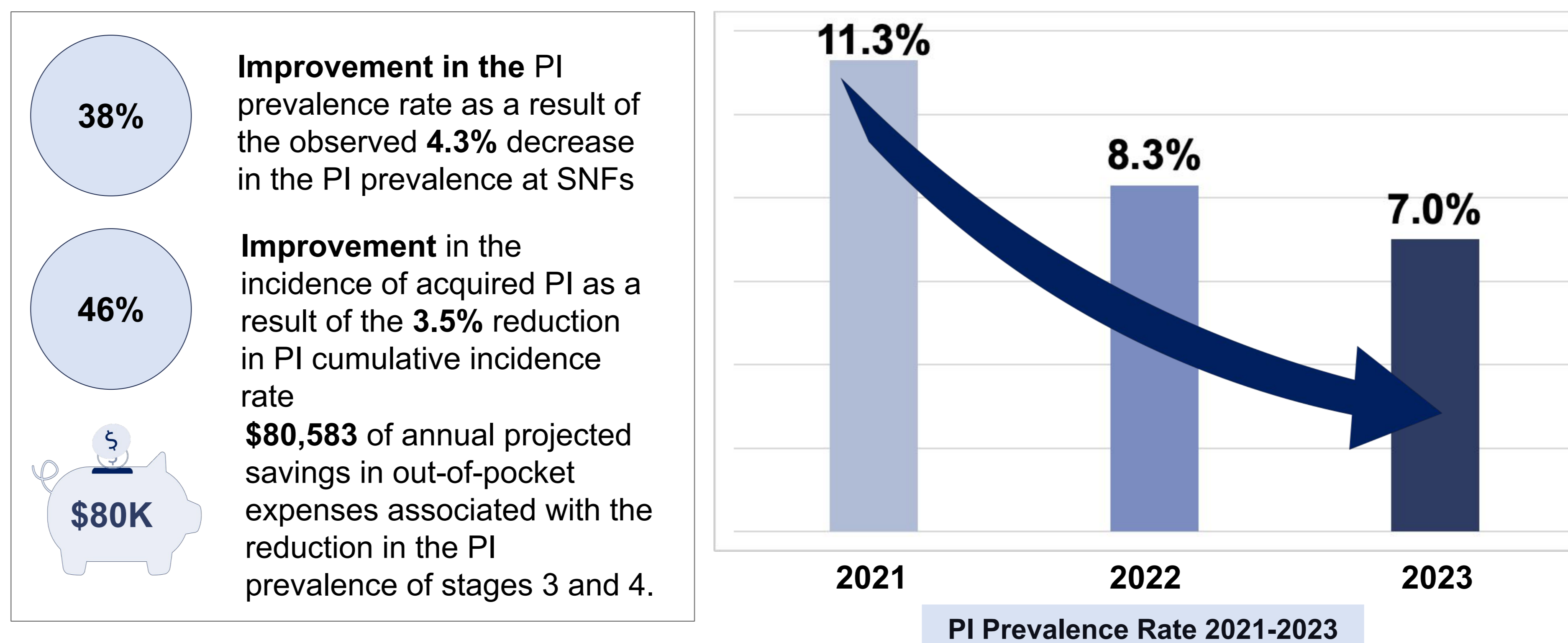
- This retrospective study collected anonymous wound evaluations of PI patients who were assessed at the SNFs that adopted the technology.
- The study collected data over a seven-month period from January to July 2023 and compared it with the data from the same period in the previous two years.

SNFs Database	Data Sources	Swift Database
For PI incidence and hospitalization rates.		For PI prevalence rate and days to heal.

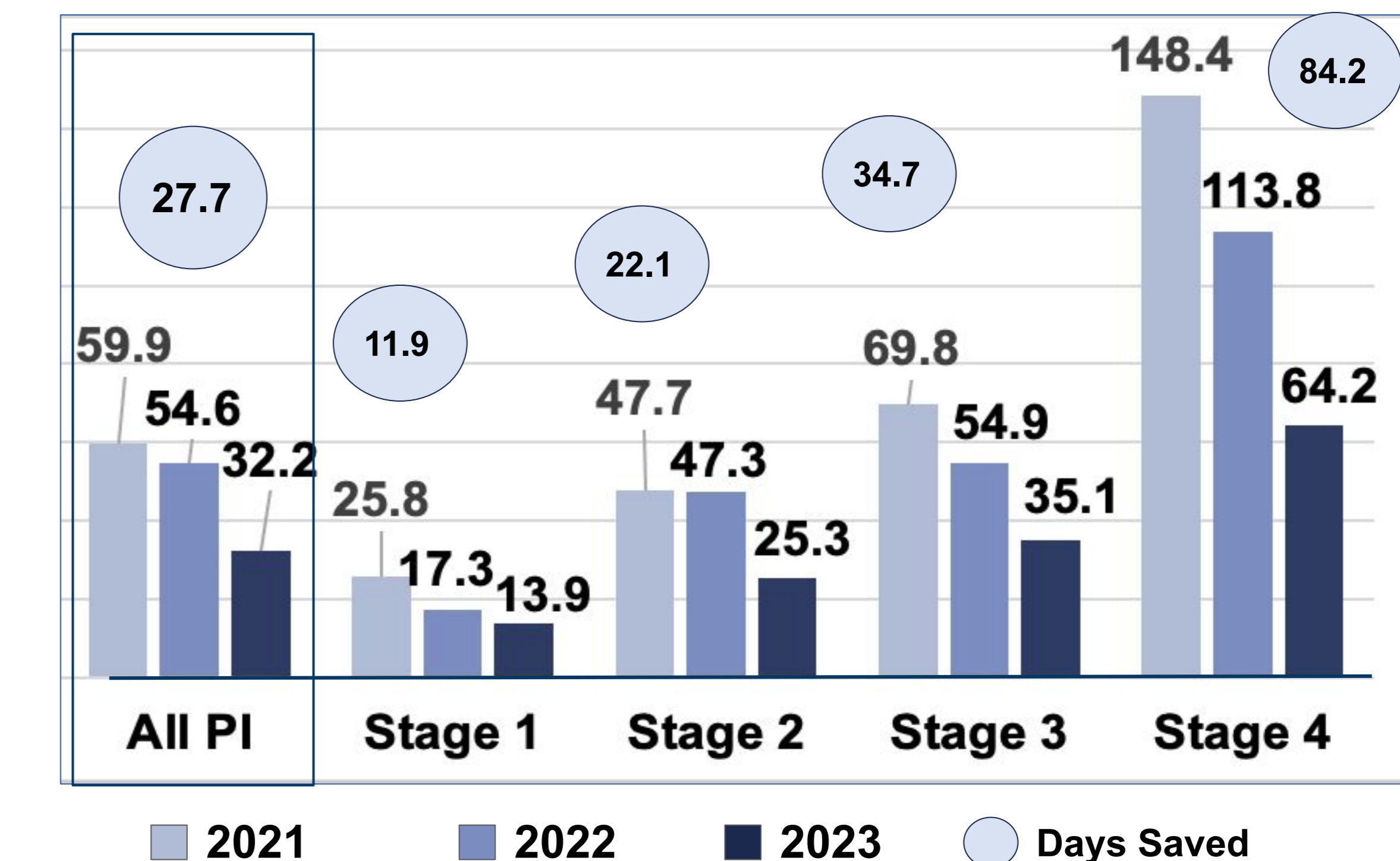


Results

PI Prevalence and Incidence Rates



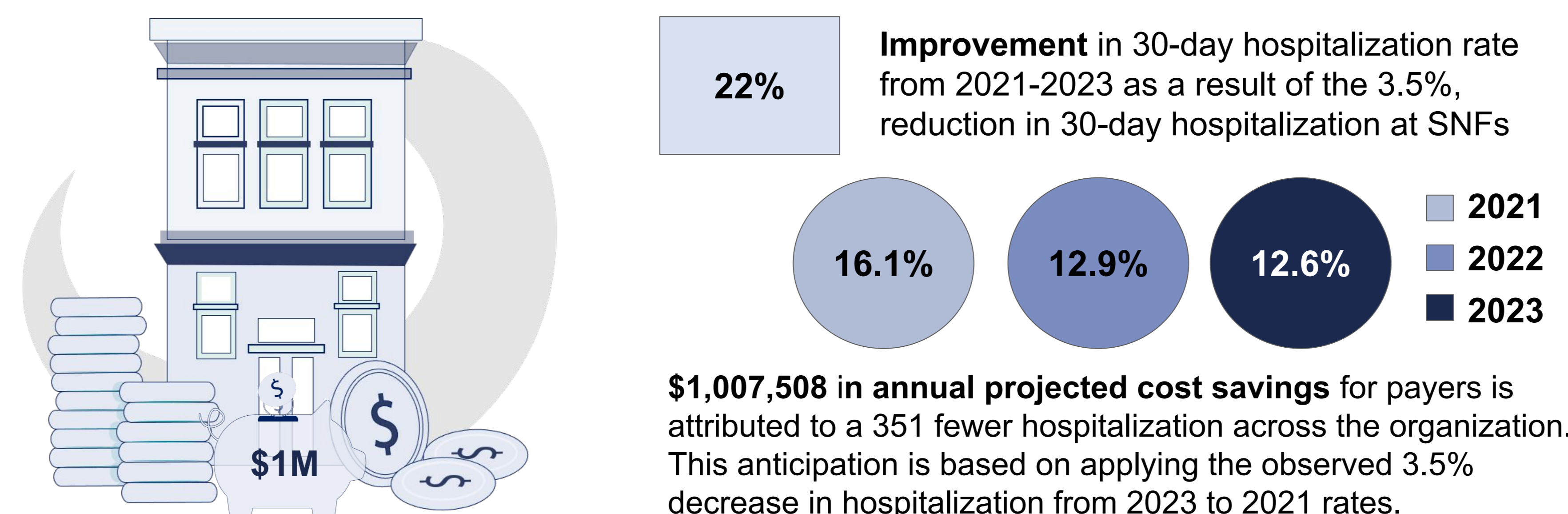
Average Days to Heal* PIs



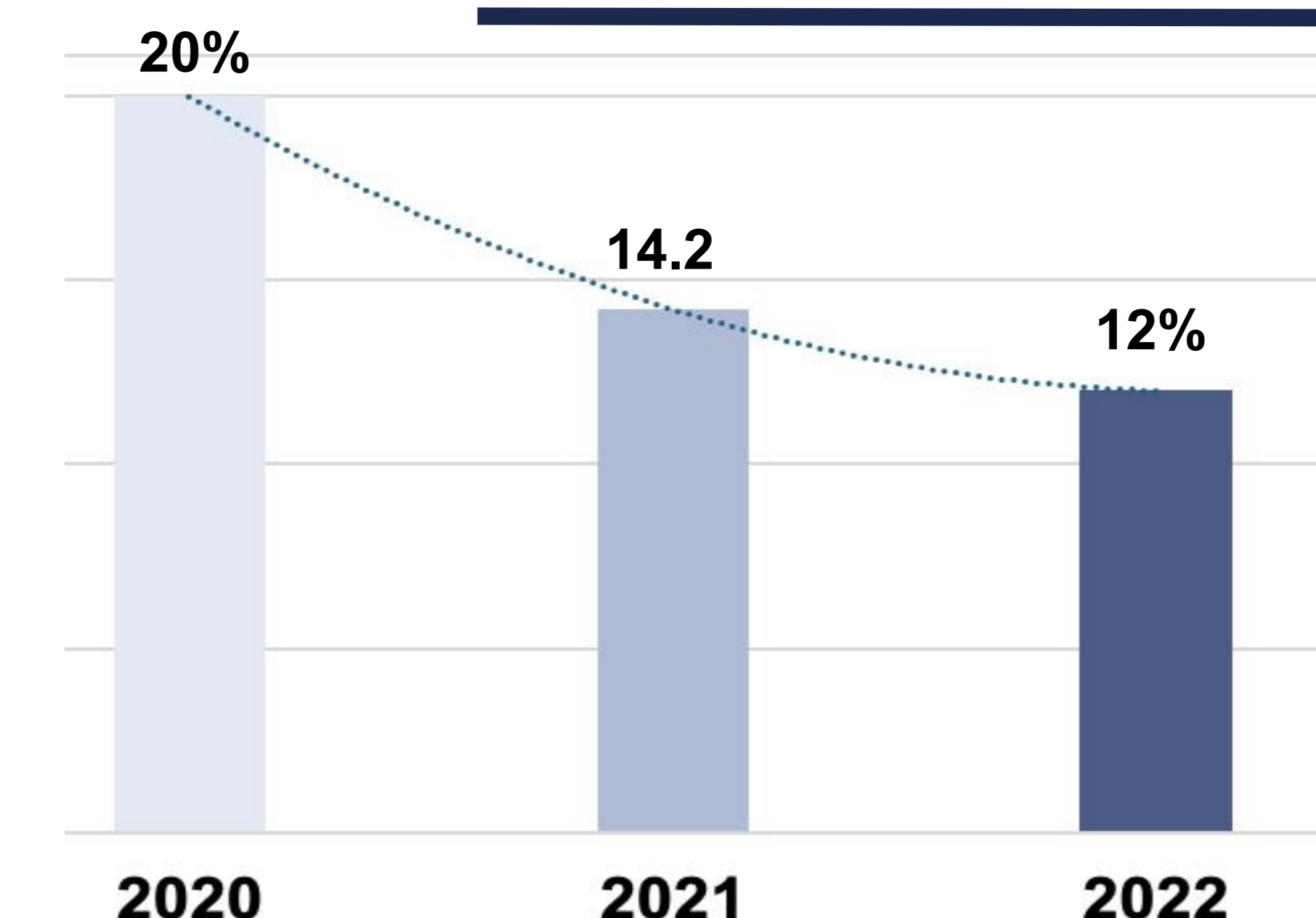
- The days to heal a PI were significantly reduced by an average of 27.7 days from 2021-2023 (P<0.001), representing a 46% faster healing time.
- Faster healing was also observed in PI stages 3 and 4 stage where management costs are the highest

* Day to heal is the time between the first and last assessment date for wounds that are marked as "healed".

30-day Hospitalization Rate



Pressure Injury Citations (F-686)



A comparison of the rate of citations associated with PIs (F-686) across the 26 SNFs that adopted Swift reveals an 8% reduction in the total number of citations received, as compared to the pre-adoption period in 2022.

Discussion

- The wound care initiative to enhance care delivery at RecoverCare Heartland, supported by adopting Swift Medical's solution, played a vital role in its observed clinical benefits.
 - Standardization of care, adherence to best practices, and improving visibility and monitoring of at-risk patients allowed RecoverCare to improve PI prevalence and incidence rates, reduce 30-days hospitalization and F-686 citations.
 - Moreover, Recovercare observed a significant decrease in the average days to heal a PI across all stages, especially for PI stages 3 and 4, where management costs are the highest.
 - Faster healing times are linked to potential cost savings. For example, with an average cost of dressing change at \$6.36 and the need to change dressing at least three times per week, a faster healing of 27.7 days has the potential to save the organization a \$90,733 annually in dressing change costs alone.
 - Swift adoption has led to a reduction in F-686 citations, which has an approximate cost of \$15,000 each.
- Utilizing digital tools in wound care would improve clinical outcomes and reduce management costs**

References

1. He J, Staggs VS, Bergquist-Beringer S, et al. Unit-level time trends and seasonality in the rate of hospital-acquired pressure ulcers in US acute care hospitals. Res Nurs Health. 2013; 6(2):171-80. doi: 10.1002/nur.21527.
2. Ayello E, Lyder C. A new era of pressure ulcer accountability in acute care. Advances in Skin & Wound Care. 2008; 21: 141-142. DOI:10.1097/01.ASW.0000305425.48047.a5.
3. Kang Y, Tzeng, H, Millar N. Facility Characteristics and Risk of Developing Pressure Ulcers in US Nursing Homes. Journal of Nursing Care Quality. 2016;31(1):E9-E16.
4. Banks MD, Graves N, Bauer JD, et al. The costs arising from pressure ulcers attributable to malnutrition. Clin Nutr. 2010; 29: 180-6. doi:10.1016/j.clnu.2009.08.006
5. Haesler E. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Cambridge, UK: Cambridge Media; 2014.
6. Pham B, Stern A, Chen W, et al. Preventing pressure ulcers in long-term care: a cost-effectiveness analysis. Arch Intern Med. 2011; 171: 1839-47. doi:10.1001/archinternmed.2011.473

