

Sustainable Success: Implementing an Infrared Thermography Scanning Protocol in Acute Care

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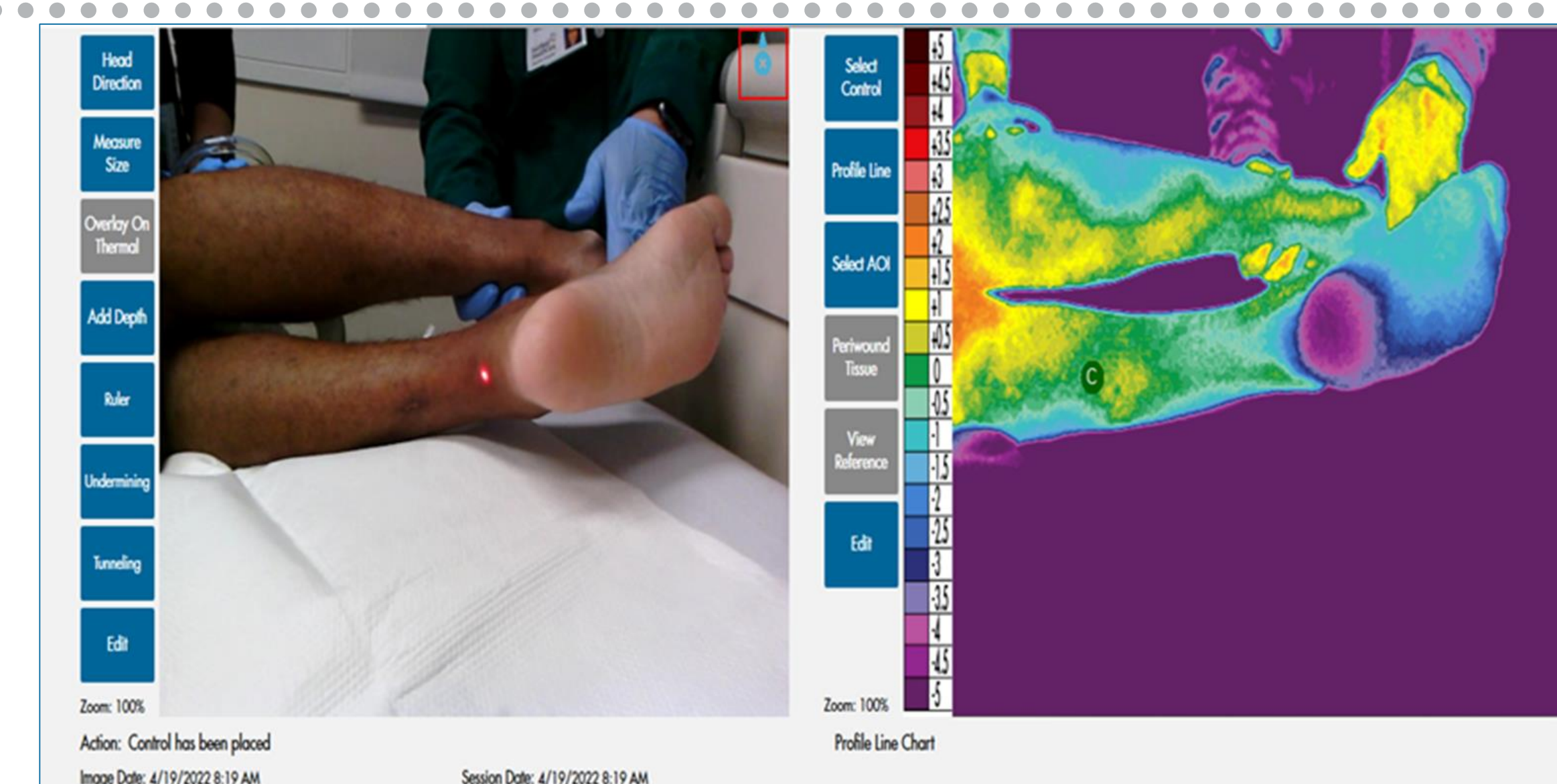
Introduction

- Rates of hospital acquired pressure injuries continue to increase¹ prompting exploration of new assessment and mitigation strategies
- Technology enhanced skin assessment can detect pre-visual present-on-admission pressure injuries that may otherwise be coded as hospital-acquired^{2,3}
- The purpose of the project was to evaluate, implement and sustain infrared thermography skin scanning in acute care, guided by Rogers innovation-diffusion model⁴



Thermography Scanning Policy:

- Bedside RN performs thermography scanning on all ICU admissions within 8 hours (with 2-RN Skin Assessment)
 - Sacrococcygeal
 - Bilateral Heels
- Tag results & Upload to EHR



- What's a "Save"?**
- 78 y.o. male "found down" x 2-3 days; PMHx: DM2, HTN, CAD
 - Admitted to ICU with CVA
 - Admission skin assessment & digital scan: L heel intact & blanchable
 - Admission thermography scan: localized temperature anomaly (~4° C) L heel
 - Skin Protocol initiated: Specialty bed, heel offloading, wound & nutrition consults
 - Day 2: a Deep Tissue Injury visualized
 - Day 7: declared as Stage 3⁵

"Save" = Wound is considered Present-on-Admission and NOT Hospital-Acquired because the pre-visual thermal anomaly was documented on admission. PSI-03 Penalty avoided.

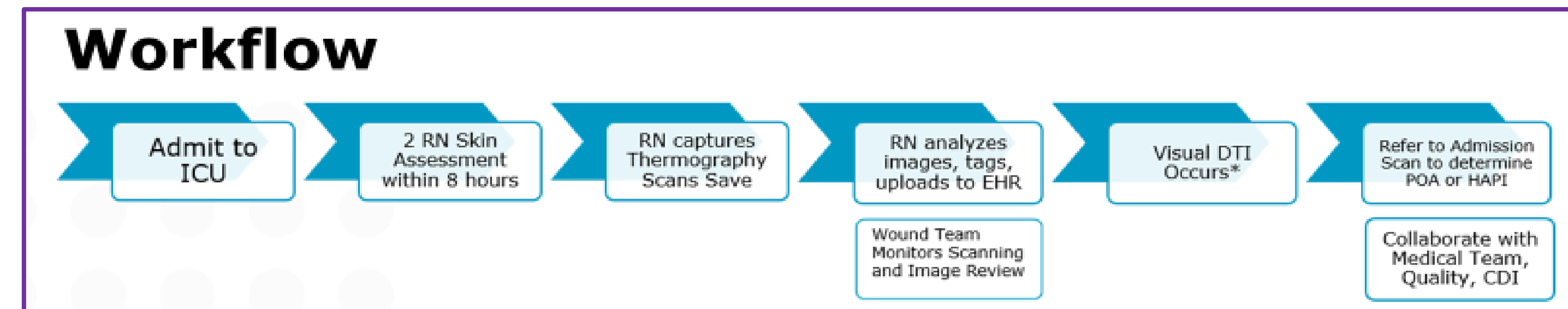
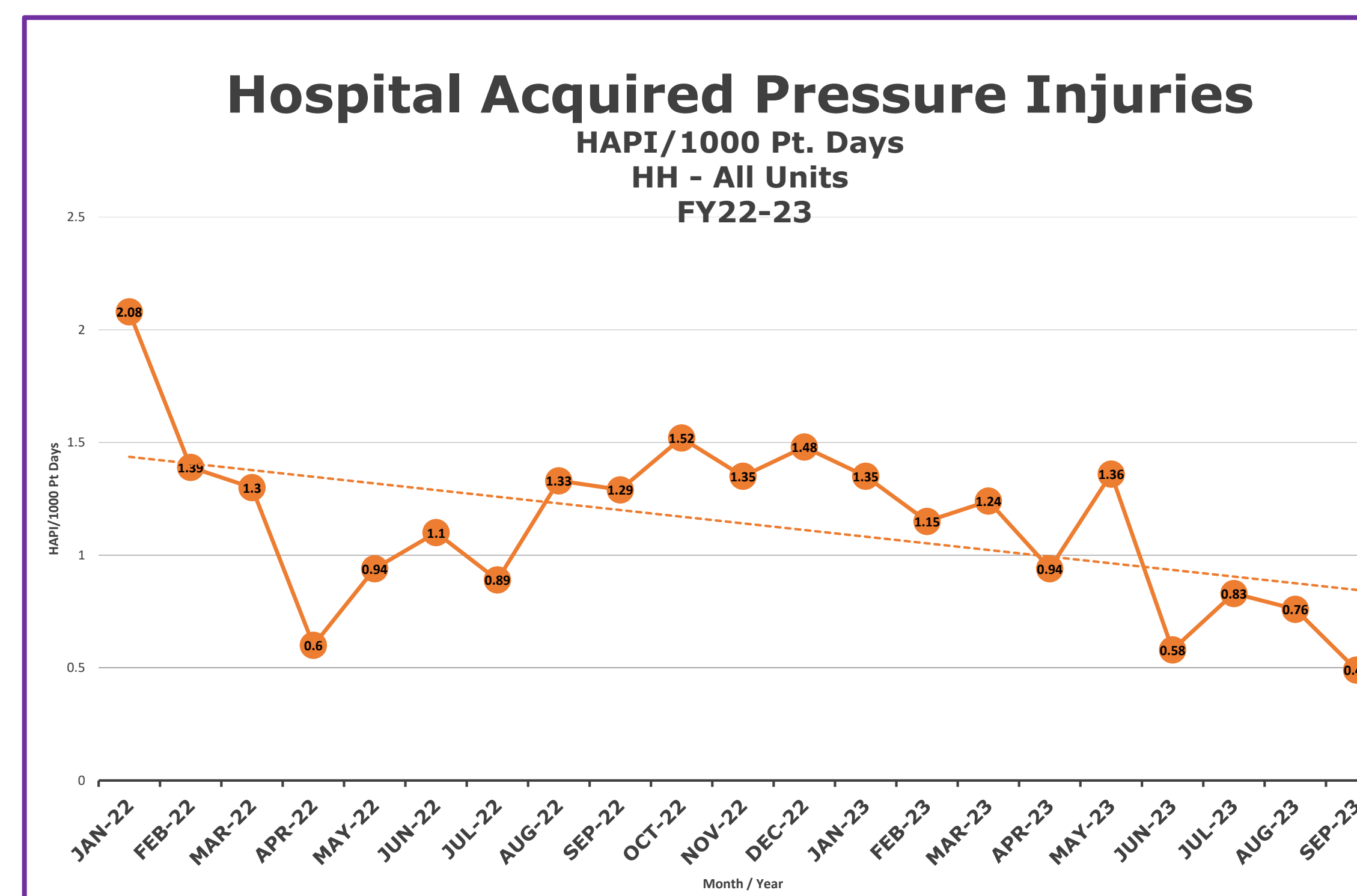
Methods

- Setting:**
- 900-bed level-1 trauma center
 - 8 ICUs

- Process:**
- Project Timeline (below)

- Quality Monitoring: Wound Team**
- Training
 - Scanning Compliance
 - Significant Results Follow-up
 - Equipment Troubleshooting

- Outcome Metrics:**
- Percent Scanning Compliance
 - Number of "Saves"
 - Financial return on investment
 - Hospital Acquired Pressure Injury rate (HAPI/1000 Pt. Days)

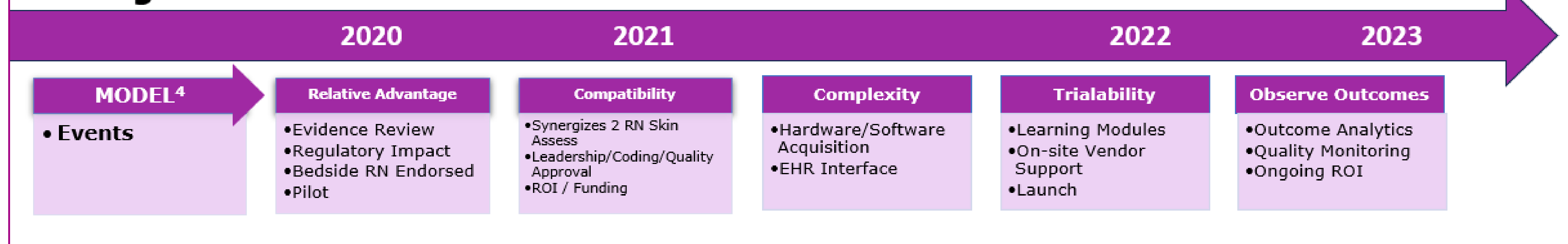


Return on Investment
30 Wounds x \$45,000# = 1.35M savings

(XDTIs that declared to Unstageable, Stage 3,4)
 Deemed "Present on Admission" by thermography scan

Key:
 ¥ PSI-03 Definition, CMS
 # Estimate of average PSI-03 penalty

Project Timeline



Results

Outcomes at 18 months:

- **Scanning Compliance in 8 ICUs:** Improved from 70% -> 85%
- **"Saves":** N=30 "Saves"
- **Return on Investment:** Est. \$45K/PSI-03 \$1.35M in avoided penalties
- **HAPI/1000 Pt. Days** Reduced by 66%

Discussion

- Implementation and sustainability of thermography scanning demonstrated positive clinical and financial outcomes
- The project has been extended to all 7 system hospitals as of 6/23
- Continued thermography scanning may help to explicate the trajectory of pressure injury

References

1. Agency for Healthcare Research and Quality. (2020, July). AHRQ national scorecard on hospital-acquired conditions final results for 2014 through 2017. <http://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/pfp/Updated-hacreportFinal2017data.pdf>
2. European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Haesler E, ed. Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline. 3rd ed. EPUAP/NPIAP/PPPIA; 2019.
3. Koerner, S., Adams, D., Harper, S. L., Black, J. M., & Langemo, D. K. (2019) Use of thermal imaging to identify deep-tissue pressure injury on admission reduces clinical and financial burden of hospital-acquired pressure injuries. *Advances in Skin & Wound Care*, 32(7), 312-320.
4. Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.
5. NPIAP (2021) Evolution of Deep Tissue Pressure Injury. Accessed 10/1/23 www.npiap.org