

“Beyond 4 Eyes in 4 Hours” Implementing Long Wave Infrared Thermography

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PURPOSE: Early identification and prevention of pressure injuries (PIs) pose significant challenges in hospital settings. Our incidence rate of hospital-acquired pressure injuries (HAPIs) was higher than the 2022 benchmark rate set by the Agency for Healthcare Research and Quality (AHRQ), which signified the need for investigation and corrective action. Root cause analysis revealed multiple key factors contributing to a higher incidence of HAPIs: inconsistent skin assessments, variances in the risk assessment tool completion, delayed preventative interventions, fragmented documentation, and organizational resistance to change.

METHODS:

A dedicated interdisciplinary team was established to address issues and identify solutions. To reinvigorate the organization and move towards “zero” harm, “4 Eyes in 4 Hours” was merged with “Thermal Imaging” into a strategy coined “**Beyond 4 Eyes in 4 Hours**”. Long Wave Infrared Thermography (LWIT) aids the bedside clinician in the early detection of pressure injuries (PIs). The merge illustrated the critical importance of timely assessment and early interventions. Other tools used included Six Sigma / Lean , Organizational Learning and System Thinking, Plan-Do-Study-Act (PDSA), Define, Measure, Analyze, Improve, and Control (DMAIC). Hospital leadership analyzed data, created a shared urgency, identified key stakeholders, and set “SMART” goals.

LWIT showing early S/S of DTPI & evolving

8/17: non-visible with Max temp 1.8C

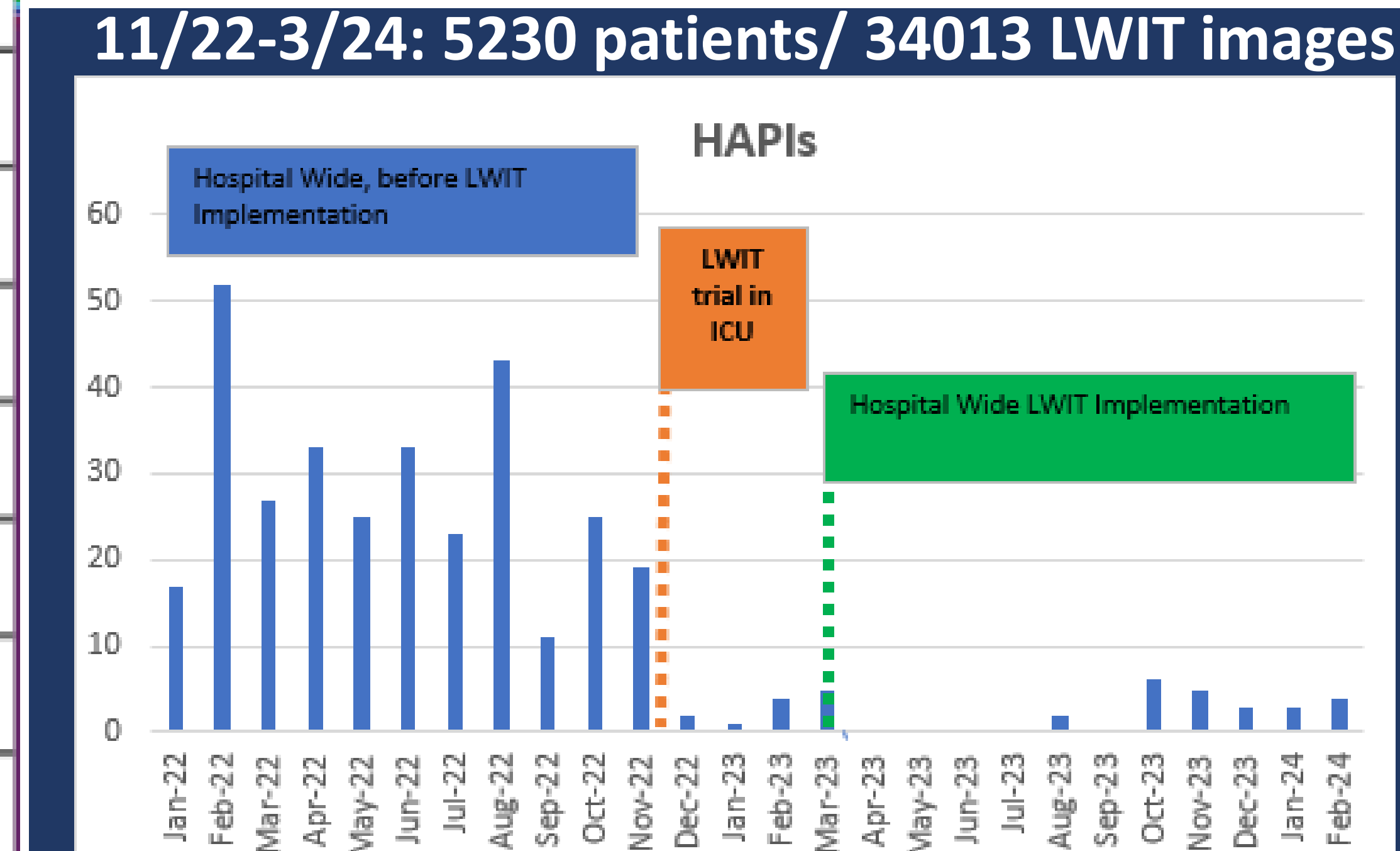
8/26: Visible skin changes with Max temp 1.5C

8/31: Evolving skin changes with Min temp -5.1C

LWIT image showing superficial discoloration

“I am so proud of this team. They drove the implementation of this project. It’s a powerful illustration of “better than hoped-for outcomes achieved when vision, possibility thinking, science, and compassion converge. So well done, and the patients are the ultimate beneficiaries!”

Kammie Monarch, RN, MSN, JD, Chief Nursing Officer



RESULTS:

The results exceeded expectations. Within two months of implementation:

- HAPI incidence reduced from a baseline of 25.71 (per 1000 discharges) to 2.55.
- At six months, the incidence rate dropped further to 0.00.
- Policy compliance is above 90%.
- As a result of this project, SJRMC’s 6-month financial gain is estimated at over 5 million dollars.

Several key factors contributed to the success of the project.

- Customized education tools for both staff and patients.
- Daily reports to unit managers, and monthly reports to the quality team.
- Routine meetings with the internal team and vendor to build future growth.

CONCLUSION: The complexity of patient care is constantly increasing, and healthcare systems must adapt and evolve to ensure the delivery of safe and high-quality care. Facilities should not hesitate to take significant measures to improve care. They should demonstrate a willingness to learn and not underestimate the clinical staff's readiness to embrace new technology and process changes. SJRMC will continue going “Beyond 4 Eyes in 4 Hours” for successful outcomes.

REFERENCES: 1. Aviles F. Early Detection of Darkly Pigmented Skin Abnormalities with Long Wave Infrared Thermography: It’s all Relative! Poster presented at SAWC 2022 Fall Conference; Oct 2022; Las Vegas. 2. Holster, M. Seeing is Believing: Driving Outcomes, Improving Documentation, and Increasing Patient Satisfaction with Long-Wave Infrared Thermography. Poster presented at WOCN 2022 Annual Conference; June 2022; Fort Worth, TX. 3. Aplin T., Matarozzo K., Edwards A. Nurses with Laser Vision for Skin Changes: Achieving Patient Outcomes. Poster Presented at WOCN 2022 Annual Conference; June 2022; Fort Worth, TX.