SAEM 2026 · OPERATIONS

Impact of an Electronic Health Record–Integrated Multidisciplinary Foot Wound Pathway in the Emergency Department

Genesis Gilliard, Jackson Agraz, Pavel Chernyavskiy, Moira Smith, Noel Mukubwa, Paul Helgerson, Joshua Eby, Caroline Tippett, Robert Becker, Daniel Wolfe, Andrew Taylor, Sarah Wendel

Department of Emergency Medicine · Public Health Sciences · Internal Medicine · Orthopedics · UVA Medical Center · University of Virginia, Charlottesville

−17%

HOSPITAL LOS REDUCTION · EHR-INTEGRATED PHASE VS NO PROTOCOL

Among admitted patients · adjusted estimate · **unadjusted ≈ −34%**

1,287
ED FOOT-WOUND ENCOUNTERS
Jun 2023 – Sep 2025 · ICD-10 identified

702 (54.5%)
ADMITTED PATIENTS
EHR phase: 383 encounters · 239 admitted

p < 0.001
PRE-CONTACT TIME REDUCTION · BOTH PATHWAY PHASES
vs No Protocol baseline

BACKGROUND

Complex foot wounds need multidisciplinary coordination.

Patients presenting to the emergency department (ED) with complex foot wounds often require coordinated multidisciplinary evaluation.

We assessed whether implementation of a foot-wound pathway, and subsequent electronic health record (EHR) integration, was associated with improved throughput and length of stay (LOS).

METHODS

Retrospective cohort across three implementation phases.

Design. Retrospective cohort study of adult ED encounters at a single academic center.

Window. June 2023 – September 2025 · ICD-10 foot-wound diagnosis codes (N=1,287).

Phases.

- No Protocol (Jun 2023–May 2024)
- Paper Pathway (Jun–Dec 2024)
- EHR-Integrated (Jan–Sep 2025)

Primary outcomes. ED LOS (minutes) · hospital LOS (days; admitted patients) · admission rate.

ED LOS decomposed. Arrival → first-provider contact (pre-contact) · first-provider contact → disposition (post-contact).

Models. Generalized additive location-scale models on log-transformed outcomes; tensor smooths for arrival hour and calendar month.

RESULTS

Pathway shortened pre-contact; EHR phase reduced inpatient LOS.

1,287	ED encounters across study period
702 (54.5%)	Resulting in admission
383 / 239	EHR-Integrated phase encounters / admitted
Shorter	Pre-contact time vs No Protocol — both pathway phases *(p < 0.001)*
No Δ	Adjusted post-contact time, total ED LOS, admission rates across phases
−17%	Hospital LOS · EHR-Integrated vs No Protocol *(adjusted, admitted patients)*
≈−34%	Hospital LOS reduction *(unadjusted estimate)*
No Δ	Paper Pathway alone — hospital LOS not significantly different
PM / summer	Largest gains: pre-contact time in afternoon hours, summer months
Localized	Hospital LOS reduction occurred in EHR phase, only afternoon admits in summer

CONCLUSION

EHR integration drives downstream efficiency without altering ED throughput.

EHR integration of a multidisciplinary foot-wound pathway was associated with reduced inpatient LOS without detectable changes in ED LOS or admission rate, supporting digital pathway deployment to improve downstream efficiency.

ASK ME ABOUT

- Pathway design (paper → EHR)
- Multidisciplinary coordination
- GAMLSS model approach
- Time-of-day / seasonal effects