

The Hospital of the University of Pennsylvania drives **\$23M+** in impact with Healthleap's AI malnutrition screening

First-quarter results · Penn Medicine · Updated August 2026

13%

Risk-adjusted LOS improvement
Healthleap-first patients vs. all other
inpatients (O/E, $p < 0.001$)

8,632

Bed days saved
annualized from the first quarter's
actuals

27%

MCC increase
vs. prior year

The challenge

Malnutrition, whether hospital-acquired or present-on-admission, is consistently underdiagnosed in acute care settings (affecting ~20 to 50% of hospitalized patients but diagnosed only in ~9% of cases). Missed diagnoses directly reduce reimbursement (malnutrition MCCs), and are associated with 1.9× longer length of stay and 3.4× higher mortality, ultimately lowering quality scores.¹

Traditional manual screening is designed for simplicity over accuracy² and is typically administered by nurses only once upon admission.³ This delays identification by days, leads to false flags, and often misses patients entirely.^{4,5}

The partnership

The Hospital of the University of Pennsylvania's Clinical Nutrition Department, known for its strong malnutrition program, partnered with Healthleap in June 2025 to deploy AI malnutrition screening across its inpatient population. The rollout moved quickly: a beta launch with 7 registered dietitians (RDs) in August, a full-team rollout in September, and full implementation by October 1, 2025.

Healthleap's AI screening reads the full EHR daily to flag patients at high malnutrition risk, including those missed by manual screening. RDs get a prioritized worklist daily. Flagged patients are assessed and treated earlier, improving patient outcomes and appropriate code capture.

Implementation timeline

DATE	MILESTONE
July 2025	Partnership signed, technical implementation begins
August 2025	Beta launch with 7 RDs
September 2025	Full team go-live
October 2025	Full implementation, 2 new RDs onboarded*
Oct to Dec 2025	First-quarter impact measured

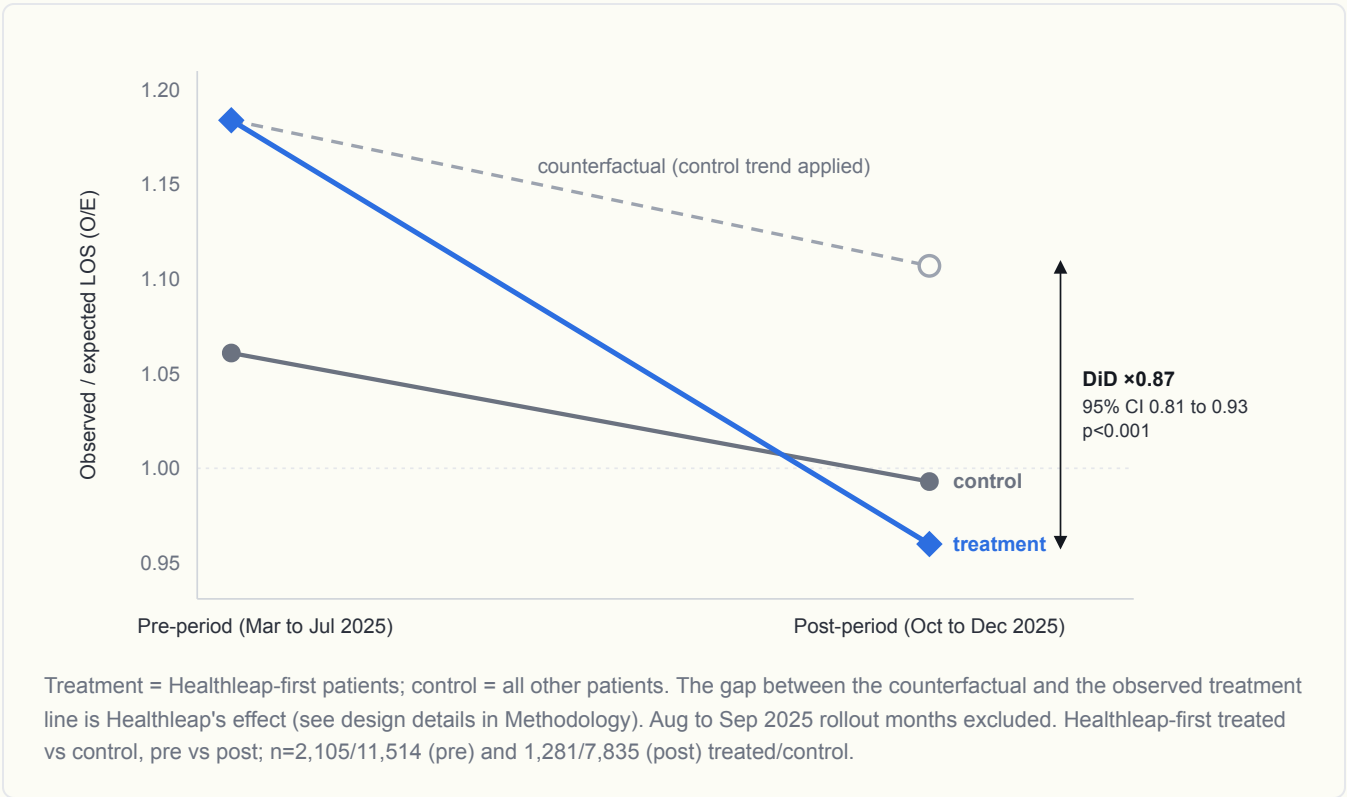
*Staffing ratios stayed constant as additional patient beds were added.

RESULTS: FIRST QUARTER (OCT TO DEC 2025)

All impact figures below are annualized from the first quarter's actuals and validated internally by Penn Medicine's Strategic Decision Support team.

Healthleap-first patients improved 13% in risk-adjusted LOS

These are patients Healthleap flagged before any RD assessment: an RD assessed them at least a full weekday later, if at all. Their risk-adjusted length of stay improved 13% more than the rest of the hospital's patients over the same period (O/E ratio, $p<0.001$). Annualized, that is 8,632 bed days saved.



Financial impact

METRIC	PROJECTED	ACTUAL (ANNUALIZED)	VALUE
Reimbursement lift (malnutrition MCCs)	26% increase	27% increase, driven by malnutrition diagnoses rising 21% year-over-year	\$6.3M/yr
LOS reduction	Estimated 2.1 days reduction for patients with malnutrition	13% (1.69 days) risk-adjusted LOS improvement for Healthleap-first patients (O/E, difference-in-differences, p<0.001). 8,632 bed days saved (23.6 beds/day)	\$17.5M/yr
Total financial impact			\$23.8M/yr

Patient health outcomes

Beyond financial impact, Healthleap's core value is getting the right care to patients faster. By continuously analyzing the full EHR, not just standard screening inputs, the model identifies patients at risk for malnutrition who would otherwise go undiagnosed and untreated for days, or be missed entirely. In the first 3 months, malnutrition diagnoses rose 21% year-over-year: 466 total, 311 severe, and 155 moderate.

Patient stories

CARDIAC SURGERY

Identified by Healthleap on hospital day 1, more than two days earlier than standard screening would have flagged them. The clinical nutrition team intervened immediately, diagnosed severe malnutrition on admission, and began a targeted nutrition care plan before surgical recovery started.

HEPATOLOGY

An extended-stay patient identified exclusively by Healthleap on hospital day 10, never flagged by traditional screening tools. The RD team diagnosed severe malnutrition, capturing both a quality impact and a malnutrition MCC. Without Healthleap, this patient would have been missed entirely.

ONCOLOGY (ED ADMIT)

Admitted through the emergency department and identified by Healthleap on day 1, letting the care team begin nutritional intervention two days earlier than standard workflows. Severe malnutrition present on admission, capturing both a quality impact and a malnutrition MCC.

Methodology

Length-of-stay outcomes: Healthleap's impact is isolated from other LOS initiatives and seasonal shifts with a difference-in-differences design: the pre-to-post change for Healthleap-first patients is compared with the change for all other patients, and the effect attributed to Healthleap is the change beyond that control trend (the gap shown in the figure). The outcome is the length-of-stay O/E ratio: observed days divided by the days expected for each patient's complexity, using the risk-adjustment methodology already in operational use at Penn Medicine. Risk adjustment matters because the hospital's case mix grew measurably sicker during the study (mean expected LOS rose from 7.25 to 7.55 days), which masks improvement in raw LOS numbers. Bed days saved (8,632, annualized from the first quarter's results) are derived from this estimate.

Financial impact: LOS impact is calculated as (days saved × direct variable cost per day) + (days saved × occupancy rate × contribution margin). Accounted for denials and write-offs, actual occupancy rate, actual payment rates across Medicare, Medicaid, Commercial, etc.

Additional analyses: This study design was further validated by a supporting fuzzy difference-in-differences analysis to separate the system's overall effect from the effect of the RD assessments its flags trigger.

What's next

Healthleap and Penn Medicine are deepening the partnership:

Multi-site expansion: Scaling the work at the Hospital of the University of Pennsylvania across Penn Medicine to establish a unified malnutrition strategy system-wide.

New condition expansion: Exploring pressure injuries (HAPI), aspiration pneumonia risk, CHF readmission prevention, and hospital-at-home patient identification.

References

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2. van Dronkelaar C, Tieland M, Cederholm T, et al. Malnutrition screening tools are not sensitive enough to identify older hospital patients with malnutrition. *Nutrients*. 2023;15(24):5126. doi:10.3390/nu15245126
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5. Cortés-Aguilar R, Malih N, Abbate M, Fresneda S, Yañez A, Bennasar-Veny M. Validity of nutrition screening tools for risk of malnutrition among hospitalized adult patients: a systematic review and meta-analysis. *Clin Nutr*. 2024;43(6). doi:10.1016/j.clnu.2024.03.008

About Healthleap

Healthleap partners with leading health systems to improve clinical outcomes and financial performance by applying AI for inpatient screening. Its AI systems continuously analyze the EHR to identify at-risk patients earlier, enabling faster clinical intervention and appropriate capture so that health systems are reimbursed appropriately for the risk in their population and the care they deliver.

\$23.8M

Annualized financial impact at a single hospital site

466

Malnutrition diagnoses in the first 3 months, up 21% year-over-year

4

Months from partnership signature to full implementation

Healthleap

Josiah Meyer, Co-founder and CEO
josiah@healthleap.ai
www.healthleap.ai

Penn Medicine

Marianne Aloupis, Director of Clinical Nutrition Support Services
marianne.aloupis@pennmedicine.upenn.edu
www.pennmedicine.org