

Tele-ICU Implementation Associated With Sustained Reduction in Hospital Length of Stay in Safety-Net Hospitals

Glenview, IL (October 12, 2026) – Implementation of a tele-ICU program across four urban safety-net hospitals was associated with a sustained reduction in hospital length of stay without increased ventilator use or evidence of system-level deterioration over 18 months.

Tele-ICU programs have expanded to address intensivist shortages, but outcome data remain heterogeneous. Many studies have been short-term, have not accounted for preexisting mortality trends, and have rarely examined safety-net systems serving high-risk populations. Researchers conducted an 18-month evaluation to assess the sustainability, safety, and maturation of a tele-ICU program while accounting for baseline mortality trends and differences among facilities.

In September 2024, a centralized closed tele-ICU model was implemented across four Los Angeles safety-net hospitals without in-house intensivists. The program included standardized workflows, family meetings within 72 hours, nightly rounds, contiguous intensivist scheduling, protocolized order sets, and remote nursing education. Researchers analyzed 6,330 ICU admissions from November 2022 through February 2026. A six-month ramp period was prespecified to distinguish transitional from mature program performance.

Baseline characteristics were similar before and after implementation, and ventilator use remained unchanged at 44.1% before implementation and 44.2% after implementation. Geometric hospital length of stay declined from 8.8 to 7.1 days, while ICU length of stay remained at five days.

Models showed no credible mortality increase during either the ramp or mature phases. During the mature phase, the posterior median odds ratio was 0.97 per month, suggesting a favorable mortality trend, although the 95% credible interval included 1. Hospital-specific analyses showed differences among facilities, with one hospital demonstrating a statistically significant 6% monthly decline in mortality odds. Across sites, mortality trends were neutral to favorable, with no sustained worsening.

“Tele-ICUs can be implemented in resource-constrained systems without increasing invasive ventilatory support or inducing system-level deterioration,” said Chidinma Chima Melton, MD, MBA, FCCP, CHEST 2026 presenting author. “Evaluation frameworks should prespecify ramp periods and incorporate longitudinal modeling rather than rely solely on early comparisons. Local integration likely determines the magnitude of benefit. Future work should define which structured quality components, including protocol

standardization, continuity models, and AI-enabled clinical support tools, most strongly drive sustained clinical and operational improvement.”

The findings suggest that tele-ICU implementation in resource-constrained safety-net hospitals can be associated with sustained reductions in hospital length of stay while maintaining stable ventilator use. The analysis also highlights the importance of accounting for program maturation, preexisting mortality trends, and differences among facilities when evaluating tele-ICU outcomes.

Further results will be presented at the CHEST Annual Meeting 2026 as part of the ICU Quality Improvement: Tele ICU and Beyond rapid fire original investigation presentations titled, *Tele-ICU Implementation and Program Maturation in Urban Safety Net Hospitals: An 18-Month Multisite Interrupted Time-Series Analysis*. The [study abstract](#) can be viewed on the CHEST® journal website.