PEPReC

Partnered Evidence-based Policy Resource Center
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POLICY BRIEF

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VHA's TeleCritical Care Program Evaluation

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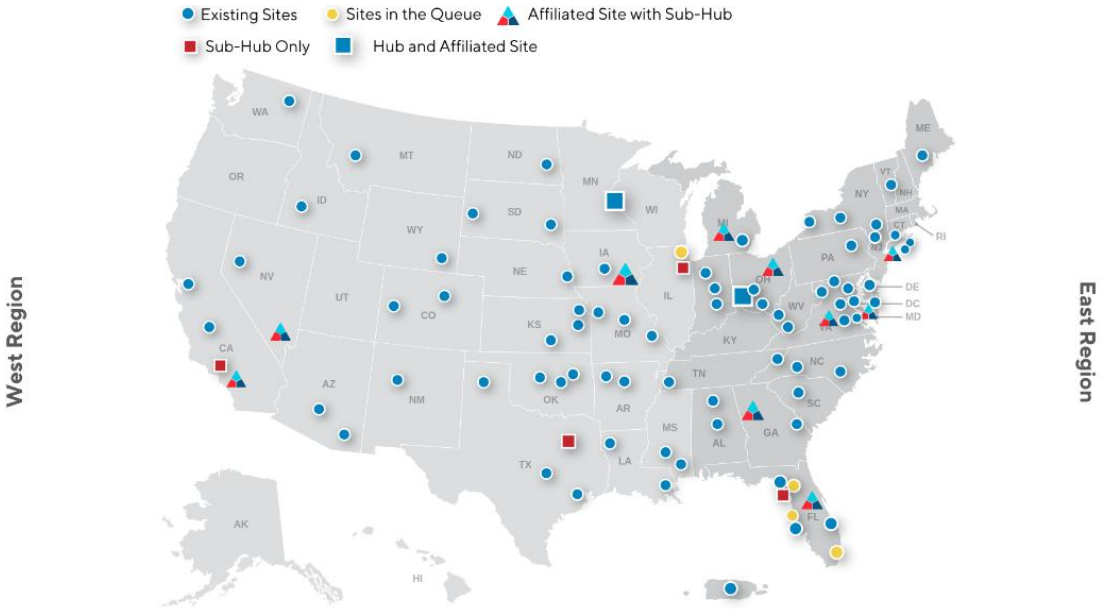
Bottom Line Up Front

The Veterans Health Administration TeleCritical Care (TCC) program connects intensive care unit (ICU) teams with remote intensivists and nurses for co-management of critically ill patients. Evaluating over 55 medical ICUs and 49 surgical ICUs that participated in the TCC program, the Partnered Evidence-based Policy Resource Center found that on average, key outcomes (e.g., mortality, length of stay, readmissions, and ICU costs) were no different from comparable ICUs that did not participate in the program. However, results varied by site, with some sites showing improvements across certain outcomes while others experienced worse performance. This variation suggests differences in TCC implementation and highlights the need for further investigation to identify best practices to yield benefits from the TCC program.

Introduction

The Veterans Health Administration (VHA) TeleCritical Care (TCC) program is a form of telehealth care that uses real-time, bi-directional, audio-visual technology to connect intensive care unit (ICU) bedside teams with geographically remote (hub) critical care intensivists and nurses for co-management of critically ill patients. TCC hub providers monitor patients' physiological and biochemical lab data remotely, enabling continuous surveillance, direct communication with bedside teams and patients, and automated alerts when clinical parameters fall outside set ranges. TCC operates 24/7 alongside local ICU staff, with one hub provider supporting up to 100 patients and one hub nurse supporting up to 50 patients.

Figure 1: Hubs and Spoke Sites of VHA's TCC Program in



Note: Figure 1 was provided by the National TeleCritical Care Program Office on June 2, 2026. Affiliated Site: VA facility whose patients TCC staff monitors. Hub and Affiliated Site: A primary TCC Hub location that serves as a Central Operational site for TCC services while also functioning as an affiliated site within the network. Affiliated Site with Sub-Hub: A participating TCC affiliated site that also serves as a designated sub hub. Sub Hub Only: A designated extension of the TCC program.

The VHA TCC program is a large, nationwide initiative implemented across more than 80 VHA ICUs, including over 1,000 ICU beds, with continued expansion underway to other VHA sites. As of June 2026, the West division has 39 existing sites, and the East division has 47 existing sites (Figure 1).[1] The VHA's Fiscal Year 2026 annual budget is approximately $52 million for this program. In addition, the VHA has spent over $300 million on capital investments as of 2025.

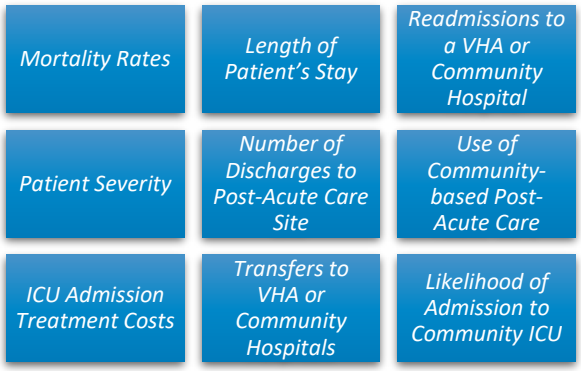
Potential Benefits of a TeleCritical Care Program

In concept, TCC has the potential to improve patient outcomes, reduce costs, and alleviate staff burnout by addressing staff shortages.[2] In particular, smaller ICUs that might otherwise transfer patients to larger sites could use TCC to provide remote monitoring and care coordination to support local staff. By extending critical care expertise virtually, TCC could also enhance consistency in care delivery. However, evidence on its real-world impact remains limited, highlighting the need for rigorous evaluation.

PEPReC's Evaluation

The Partnered Evidence-based policy Resource Center (PEPReC) assessed the clinical and economic impacts of VHA's TCC program on up to 55 medical ICUs (MICUs) and 49 surgical ICUs (SICUs). The evaluation examined 22 different outcomes spanning the domains outlined in Figure 2.

Figure 2: Clinical, Utilization, and Cost Outcome Measures.



Data & Design

The evaluation used a retrospective analysis with multivariate regression models and patient-level data to estimate the impact of VHA's TCC implementation. Each MICU and SICU that implemented TCC between 2019 and 2023 was evaluated separately, and the overall impact was the average impact among the ICUs.

The analysis followed four major steps:

Site-level Evaluation	Each ICU that implemented TCC was evaluated individually to capture heterogeneity in implementation timing and context.
Comparison Group Construction	For each outcome, each TCC ICU was compared with similar ICUs that had not yet implemented TCC but matched on pre-implementation outcome trends.
Impact Estimation	A difference-in-differences framework was used to compare pre- and post-implementation changes in outcomes between TCC and matched ICUs, adjusting for patient, facility, and seasonal factors.
Cross-site and Subgroup Analysis	Results were aggregated across sites, and additional analyses examined variation in effects by staffing levels, intensity of TCC use, hub affiliation, and timing of adoption.

Note: Comparison non-TCC sites were important to control for broader system changes, such as the downward trend in the number of ICU admissions, shifts from inpatient to outpatient settings, and the growth in community care utilization.

Results

On average among the MICUs and SICUs evaluated, PEPReC did ***not*** observe consistently significant effects of TCC on any of the evaluated outcomes; the changes in the TCC ICUs from pre- to post-implementation were not statistically different from the changes observed in comparable ICUs. On average, these findings suggest that implementation of TCC in a typical ICU would ***not*** be expected to produce meaningful changes in the measured clinical, utilization, or cost outcomes. Figure 3 below illustrates one important outcome in our analysis, ICU length of stay (LOS).

However, **results varied across sites**. Some ICUs experienced consistently positive changes across multiple outcomes, while others showed consistently negative patterns. The variation potentially suggests that local implementation and patterns of use may influence outcomes.

Figure 3: TCC Impact on Length of Stay in Medical ICUs

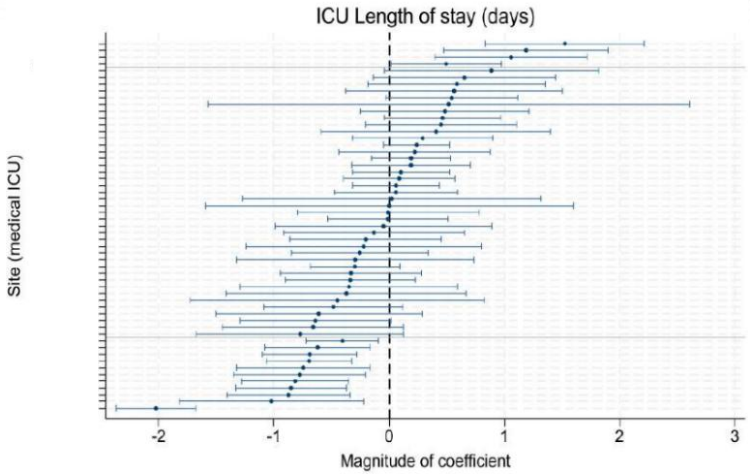


Figure 3 shows adjusted point estimates and 95% confidence intervals for LOS across MICUs. Although LOS varied across sites, most estimates were close to the overall average and their confidence intervals overlapped zero, suggesting little evidence of meaningful differences after adjustment. Overall, TCC was ***not*** *associated with a statistically significant change in LOS at the 5% level (relative to control sites). Only a few sites appeared to have significantly longer or shorter ICU stays than expected. Note: Site names have been removed.*

Costs of Implementation

We also compiled costs of implementing other TCC-like programs. The program represents a substantial investment, with prior estimates indicating implementation costs of up to $73,000 per ICU bed and annual operating costs of approximately $47,000 per ICU bed. These costs are generally comparable to costs reported for similar programs in non-VHA health systems.

Limitations

Although this evaluation uses a rigorous design (including site-specific analyses, alignment of post-implementation periods with active TCC use, and multiple years of pre- and post-implementation data), it has several limitations. First, some of the sites' evaluation periods coincided with the COVID-19 pandemic; the Veterans Access, Choice, and Accountability Act of 2014; and the VA MISSION Act of 2018, which expanded access to community care.[3, 4] These may have influenced VHA ICU utilization and outcomes. Thus, it was critical to include control sites in the evaluation. Moreover, the models directly control for factors such as local COVID-19 case rates, ICU congestion, bed occupancy, and staffing levels, which are site-specific changes. To the extent that the comparison sites for affected TCC sites and the direct control measures did not fully control for co-occurring changes in practice, the estimated impacts might not be isolated to the TCC impact alone. Second, this evaluation focused on patient and economic outcomes and did not assess other potential TCC effects, such as provider burnout, resident training experiences, or impacts within specific clinical shifts or patient subgroups. These areas may warrant further investigation.

Discussion & Policy Implications

Given the findings, additional research is needed to determine whether the current use of TCC can be optimized to improve outcomes. Notably, the observed heterogeneity across sites indicates that some sites may be implementing TCC in ways that are more effective than others, pointing to an opportunity to identify and scale best practices. Future work could include pilot programs or targeted implementation strategies that test how TCC support is used in practice; for example, focusing on settings where remote expertise may provide the greatest benefit, such as during resident coverage, night shifts, or weekends when on-site staffing may be more limited.

Further research should also incorporate qualitative perspectives from ICU clinicians, staff, and patients, particularly at sites that have experienced more favorable outcomes. Insights from these providers could help identify best practices for integrating remote intensivist support into bedside care and inform strategies to improve how the VHA TCC program is implemented across sites.

References

1. Jefferson, D., & Thompson, B. (n.d.). TELECCAffiliates [Review of TELECCAffiliates]. SharePoint. Retrieved June 2, 2026, from https://dvagov.sharepoint.com/sites/vacoteleccaffiliates?xsdata=MDV8MDJ8fGE2YTdiMDI2YWIxZjQ5M2YxNjk1MDhkZDE0YzNkMTYxfGU5NWYxYjIzYWJhZjQ1ZWU4MjFkYjdhYjI1MWFiM2JmfDB8MHw2Mzg2ODk1NTM4NDIwOTAzNTZ8VW5rbm93bnxUV0ZwYkdac2IzZDhleUpGYlhCMGVVMWhjR2tpT25SeWRXVXNJbFlpT2lJd0xqQXVNREF3TUNJc0lsQWlPaUpYYVc0ek1pSXNJa0ZPSWpvaVRXRnBiQ0lzSWxkVUlqb3lmUT09fDB8fHw%3D&sdata=WGNLTTdqZXR0VUJMbU1pUEZ2SEJvcFFnbDRqOEROb1drR3Nibi85bU4xND0%3D&CT=1733358603779&OR=OWA-NTMail&CID=52789e38-7e33-a9f5-b56036225d4f164a&clickParams=eyJYLUFwcE5hbWUiOiJNaWNyb3NvZnQgT3V0bG9vayBXZWIgQXBwIiwiWC1BcHBWZXJzaW9uIjoiMjAyNDExMTUwMDMuMjciLCJPUyI6IldpbmRvd3MgMTAifQ%3D%3D
2. (n.d.). TeleCritical Care Bedside Staff Guide [Review of TeleCritical Care Bedside Staff Guide]. SharePoint. Retrieved December 4, 2024, from https://dvagov.sharepoint.com/sites/VACOTELECC/Organization%20Documents/Forms/AllItems.aspx?id=%2fsites%2fVACOTELECC%2fOrganization+Documents%2fImplementation+Documents%2f0003B_TeleCC_Bedside+Staff+Guide+Medical+Media_02172022_V1.0.pdf&parent=%2fsites%2fVACOTELECC%2fOrganization+Documents%2fImplementation+Documents&xsdata=MDV8MDJ8fGE2YTdiMDI2YWIxZjQ5M2YxNjk1MDhkZDE0YzNkMTYxfGU5NWYxYjIzYWJhZjQ1ZWU4MjFkYjdhYjI1MWFiM2JmfDB8MHw2Mzg2ODk1NTM4NDIxMDc5MDZ8VW5rbm93bnxUV0ZwYkdac2IzZDhleUpGYlhCMGVVMWhjR2tpT25SeWRXVXNJbFlpT2lJd0xqQXVNREF3TUNJc0lsQWlPaUpYYVc0ek1pSXNJa0ZPSWpvaVRXRnBiQ0lzSWxkVUlqb3lmUT09fDB8fHw%3d&sdata=RG5XaW9xTzFDTTJsckpqa01YYnltL3FDQkQ2QWFPUTVaSi84WGxlL3dTYz0%3d
3. Veterans Access, Choice, and Accountability Act of 2014, H.R.3230, 113th Congress (2013-2014). https://www.congress.gov/bill/113th-congress/house-bill/3230
4. Department of Veterans Affairs. VA launches new Health Care Options Under Mission Act. VA News. 2016. https://news.va.gov/press-room/va-launches-new-health-care-options-under-mission-act/

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This evidence-based policy brief is written by Partnered Evidence-based Policy Resource Center (PEPReC) staff to inform policymakers and Veterans Health Administration (VHA) managers about the evidence regarding important developments in the broader health system and economy. PEPReC is a Quality Enhancement Research Initiative-funded resource center that collaborates with operational partners to design and execute randomized evaluations of VHA initiatives, develops and refines performance metrics, and writes evidence-based policy briefs. *The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States government.*