How nurse-led improvement drives patient and financial outcomes



Ovid® Synthesis
by Wolters Kluwer

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Executive snapshot

Sentara Health faced clinical and organizational challenges in reducing the time patients spent in its emergency departments (EDs). New clinical improvement technology, namely Ovid® Synthesis, enabled them to design and implement a study to measure the direct impact of implementing a vertical care model in one of their 12 EDs. Using the infrastructure and tools in Ovid Synthesis, Sentara developed a laser-focused, statistically rigorous study that showed the vertical care model reduced ED length of stay (LoS) for mid-acuity patients by 11 minutes, resulting in 18.3 hours of staff time saved per day and an annual financial impact of $286K/year.

The challenge

Timely patient evaluation in EDs is a complex, ongoing challenge.[1] One strategy is to use a vertical care model (also called a "split-flow" model), which utilizes acuity-based care zoning to optimize space and move mid-acuity patients faster from triage to assessment, diagnostics, and treatment — with the ultimate goal of reducing patients' LoS in the ED.[2,3] However, no formal guidance exists for creating, implementing, or measuring the success of a vertical flow.[1]

Sentara Health, which operates 12 acute-care hospitals across Virginia and North Carolina, faced persistent challenges with ED crowding, prolonged LoS, staffing challenges, and suboptimal patient experiences. To address that, Sentara CarePlex Hospital in Hampton, Virginia, sought to undertake a two-year study — a rigorous evaluation of the real-world impact of implementing a vertical care model on ED overcrowding and boarding of its Emergency Severity Index (ESI) 3–5 patients. But the project's scope was daunting.

The solution

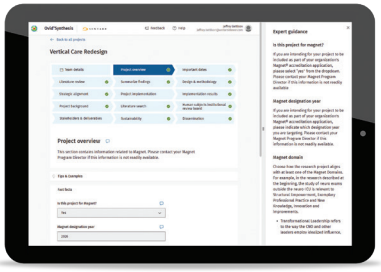
With the help of Sentara's medical librarian and data analyst team, CarePlex ED nurses tapped Ovid Synthesis, a comprehensive clinical improvement workflow solution that can accelerate evidence-based practice (EBP) and quality improvement (QI) projects.

Ovid Synthesis provides an intuitive solution that's accessible to all nurses. It enables sequential guidance through each step of the improvement project with a streamlined process, improving clinical engagement and collaboration. Additionally, the centralized system keeps progress on track even when some members are absent (e.g., during maternity leave). All projects are visible in real time to all stakeholders involved, spanning cross-functional teams including the medical librarian, data analyst, nurse leaders, and executive leadership.

Sentara®

About Sentara Health

Sentara Health operates 12 acute-care hospitals and 400+ care sites throughout Virginia and North Carolina. Employing more than 34,000 people, it is ranked as one of the top 20 largest not-for-profit integrated health systems in the United States. All its eligible hospitals hold Magnet® designation for nursing excellence, with several recognized as Magnet with Distinction™.



"Ovid Synthesis lays out each step in a way that makes sense for efficiency and collaboration."

- Ashley J. Lee, BSN RN, CEN, Emergency Department Clinical Nurse Manager, Sentara Health

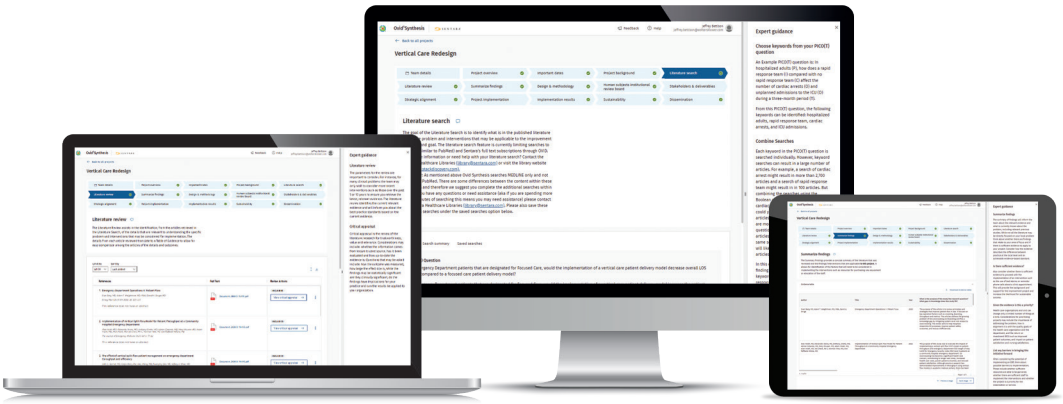
The results

Implementation of a vertical care model in CarePlex's ED resulted in impressive outcomes:

- 11-minute (12.5%) reduction in median LoS after implementation
- Greatest reduction in LoS seen with ESI 3 patients
- Staff hours saved per day = 18.3
- Enabled staff to spend more time with high-acuity patients
- Annual financial impact = $286K/year (based on 260 working days/year)
- Potential equivalent gain of 12 FTEs if scaled enterprise-wide
- 100% ROI in the first year implemented

Ovid Synthesis did more than facilitate a successful improvement project. The staff noted a 50% reduction in their research time, from 600 hours down to 300 hours.

Standardized workflow steps ensured the project's structure and quality, while integrated collaboration with the librarian and data analyst and the templated outputs for enterprise-wide dissemination collectively contributed to the project's success.



Project Overview

Study type
Single-center, two-year, qualitative study

Study duration
May 2022 – May 2024

Inclusion/exclusion criteria
Adult patients
< 89 years old

Triaged as ESI 3–5 to vertical care

Dispositioned for discharge

Completed the ED Patient Experience Survey

Sample size for statistical power: 832 patient records

Conclusion

The CarePlex team proved that a vertical care model works in a high-volume ED environment, with quantifiable impacts on time savings, cost savings, LoS reductions, and staff engagement. Now they have a clear path to scale their results across all 12 EDs in the system. Additionally, the research committee has grown from 2 to 12 members, and the current outcomes have positioned nursing as system-wide change leaders.

The backbone of that effort is the sustainable infrastructure that Ovid Synthesis provides for research, EPB, and QI. Its real-time project visibility and oversight can prevent overlap of strategic initiatives while fostering team collaborations, while its automated dissemination features can accelerate enterprise-wide scaling of positive outcomes. Sentara's success demonstrates how you can trust Ovid Synthesis as a partner to support your goals for scaling nurse-led improvement into long-term value for your health system.

Acknowledgments

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• Rikki Hartney, BSN, RN, CEN, Sentara CarePlex Emergency Department



Want to see how Ovid Synthesis can support your health system and produce similar outcomes? Contact sales@ovid.com, scan the QR code, or visit synthesis.ovid.com for a personalized demo.

References

1. Lowie B-J, Hicks C, Falat C, et al. Overcoming stagnant flow: A scoping review of vertical movement in the emergency department. Acad Emerg Med. 2024;31(3):256-262.
2. Germani A, Mobus K, Russell P. A nurse-led split flow model for operational improvement. J Emerg Nurs. 2026;52(3):573-582.
3. McCartt M, Ramos J, Siewny L. How we implemented a split flow hallway. J Emerg Med. 2026:84:37-45.

"Ovid Synthesis has transformed our research. It's increased our nurse engagement where research is seen as accessible, manageable, and a driver of innovation."

- Ashley J. Lee, BSN RN, CEN, Emergency Department Clinical Nurse Manager, Sentara Health