Carilion Clinic Reduces ICU Bounce Backs by 38% with the Rothman Index and Nurse-Led Surveillance

Highlights:

• 38% Reduction in ICU bounce backs within 24 hours

• Proactive discharge assessments supported by the Rothman Index®

• Led by Clinical Administrator Nurses in collaboration with care teams

Objective:

Carilion Clinic set out to enhance patient transitions from the ICU by reducing avoidable bounce backs—patients who return to the ICU within 24 hours due to a decline in condition. The initiative focused on combining the clinical judgment of seasoned nurses with real-time predictive insights from the Rothman Index.

Background:

Carilion Clinic, a not-for-profit health system headquartered in Roanoke, VA, serves southwestern Virginia with six community hospitals and its flagship, Carilion Roanoke Memorial Hospital (CRMH). This 718-bed facility—consistently ranked among the elite 11% of hospitals nationwide on U.S. News & World Report's annual Best Hospitals list—features advanced specialty services, a Neonatal ICU, Carilion Children's Hospital, and the region's only Level 1 Trauma Center.

Challenge:

ICU bounce backs can lead to increased patient mortality, longer hospital stays and higher healthcare costs.[1,2] These readmissions are often difficult to predict and strain both clinical and operational resources. Recognizing this, Carilion prioritized a more structured and data-informed approach to ICU discharges.

Solution:

CRMH had been using the Rothman Index (RI) to provide a visual picture of a patient's physiological condition in real-time and their trajectory— whether deteriorating, stable, or improving. And now for the first time, they applied it directly to ICU discharge decisions. A highly skilled team of Clinical Administrator (CA) nurses, led by Heather W. Bramblett, RN, BSN, CCRN-K; Director, Nursing Support Services, began reviewing the RI trend graphs for ICU patients and collaborated with the broader care team to determine if the patient was ready for transfer or at risk of rebound deterioration. This new protocol allowed for consistent, nurse-led discharge assessments informed by both data and bedside experience.

> "Reducing ICU bounce backs is an important initiative for us. We want to ensure that patients are receiving the right level of care for their condition and are set up for success after leaving the ICU."
>
> Heather W. Bramblett, RN, BSN, CCRN-K; Director, Nursing Support Services

> "Since adopting the Rothman Index in 2016, it has helped our clinical teams identify at-risk patients earlier, promoting more timely intervention and better outcomes."
>
> Stephen Morgan, MD Carilion Clinic Chief Medical Information Officer

Results:

Over a 12-month period, Carilion achieved a **38% reduction in ICU bounce backs.** The Rothman Index, embedded into Clinical Administrator workflows, created a repeatable and scalable approach to safer ICU transitions.

"The Rothman Index is key to our ICU discharge workflow," said Bramblett. "Using the RI along with their skills and knowledge, our clinical administrators quickly identify patients at risk of returning. It's had a positive impact not just on patient outcomes, but also on team communications and care planning."

Reduction in ICU Bounce Backs

Conclusion

CRMH's innovative use of the Rothman Index for ICU discharge surveillance reflects its commitment to patient safety, care quality, and nursing leadership. With proven results, the organization continues to expand RI integration across physician rounding, event reviews, and discharge workflows.
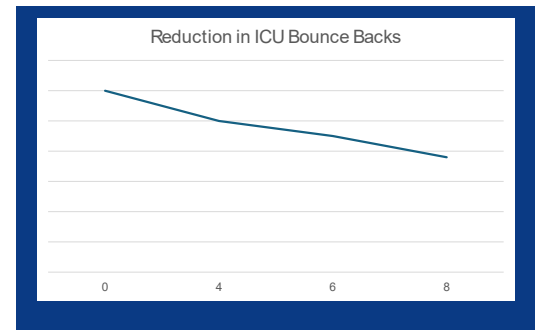
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[1] Stahel et al. Patient Safety in Surgery (2024) 18:10; https://doi.org/10.1186/s13037-024-00391-2
[2] Goellner, E Tipton, T Verzin, L. Weigand, Nursing Management, 53(1), pp 28-33, 2022; https://journals.lww.com/nursingmanagement/citation/2022/01000/improving_care_quality_through_nurse_to_nurse.6.aspx