HRST®
HEALTH RISK SCREENING TOOL

Outcomes of Health Risk Screening Tool (HRST) Implementation at Threshold Residential Services

A Comparison of CY 2024 and CY 2025

Abstract

Threshold Residential Services (TRS) participated in a pilot implementation of the Health Risk Screening Tool (HRST) under the direction of the Ohio Department of Developmental Disabilities (DODD). Fifty-one adults with intellectual and developmental disabilities (IDD) receiving residential services were screened using the HRST between August 2024 and January 2025. Outcomes from calendar year (CY) 2024 (pre-implementation baseline) were compared to calendar year 2025 (post-implementation year).

Following HRST implementation, TRS observed a 56% reduction in behavior-related unusual incidents (UIs), a 50% reduction in unanticipated hospitalizations, and a 43% reduction in emergency department (ED) visits. Estimated direct medical cost avoidance exceeded $135,000. These findings suggest that systematic screening with the HRST enables early identification of medical and behavioral health destabilization and contributes to measurable reductions in acute care utilization among people with IDD.

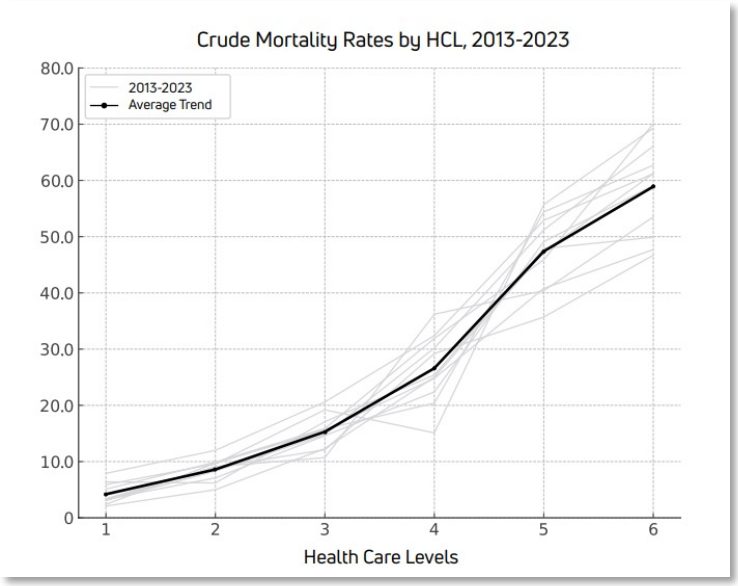
Background

People with intellectual and developmental disabilities experience disproportionately high rates of complex health conditions and acute care utilization[1]. Research indicates hospital stays average 7–11 days for children with IDD compared to 4–5 days for the general population[2]. Hospitalization costs are 1.5–2 times higher, frequently exceeding $30,000–$40,000 per admission.

The Health Risk Screening Tool is designed to identify health risks, detect early warning signs of medical destabilization, and guide proactive interdisciplinary care planning. The HRST uses a simple 22-item scale comprised of Rating Items that target specific areas of risk, including risks associated with eating, ambulation, self-abuse, aggression, bowel function, skin integrity, nutrition, falls, and 14 other areas. Based on the numerical total of the 22 Rating Item scores, a Health Care Level (HCL) is assigned. Health Care Levels can range from 1-6; the higher the HCL, the higher the risk.

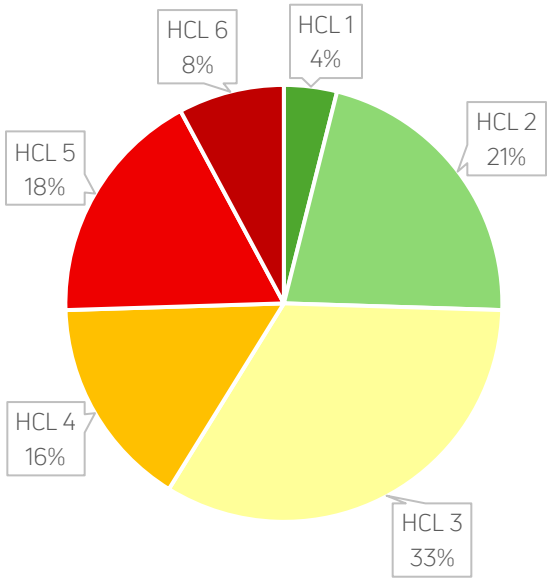
The HRST HCL is a proven predictor of mortality risk for people with IDD[3]. Figure 1 depicts a statistically significant increase in the crude mortality rate for each HCL, thus demonstrating the strong relationship between the HRST HCL and mortality prediction.

Figure 1



Threshold Residential Services implemented HRST screening between August 2024 and January 2025. As seen in Figure 2, fifty-one adults with IDD were screened, resulting in HCLs ranging from 1 (lowest risk) to 6 (highest risk), demonstrating applicability across varying degrees of medical and behavioral health status.

Figure 2. TRS HRST Health Care Level (HCL) Distribution



Methods

Participants

- **Total screened:** 51 adults with IDD
- **Setting:** Residential programs provided by Threshold Residential Services
- **HRST screening period:** August 2024 – January 2025
- **Outcome comparison period:** CY 2024 vs. CY 2025

Study Design

A pre–post implementation comparison design was used. Outcomes from CY 2024 (pre-HRST) were compared to outcomes from CY 2025 (post-HRST implementation).

Primary outcomes included:

- Behavior-related unusual incidents (UIs)
- Unanticipated hospitalizations
- Emergency department visits

Results

Behavior-Related Unusual Incidents (UIs)

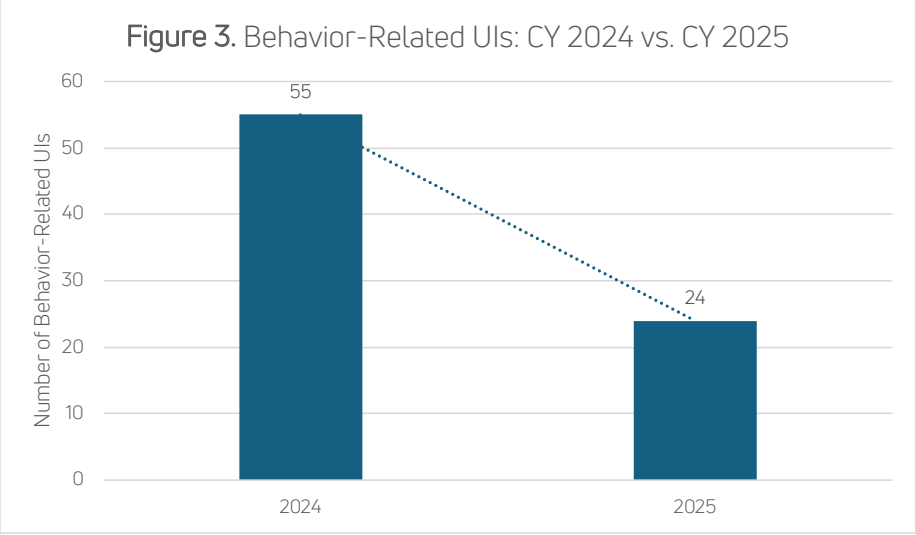
Behavior-related unusual incidents, defined as peer-to-peer aggression, self-injurious behavior (SIB), or destruction of property, declined by **56%** following HRST implementation (Figure 3).

In 2024, TRS intentionally refined behavioral data collection, recognizing behavioral changes as potential indicators of underlying medical conditions. Following HRST implementation, early identification of health risks and coordinated interdisciplinary response among residential, habilitation, and nursing teams contributed to fewer medically-driven behavioral crises.

While the financial impact is difficult to precisely quantify, behavior-related incidents require:

- Intensive staff intervention
- Ongoing monitoring
- Documentation and reporting
- Potential staffing adjustments
- Disruption of routines and programming

The 56% reduction represents a significant operational and clinical improvement.



Unanticipated Hospitalizations

Unanticipated hospitalizations declined by **50%**.

People with IDD typically experience longer hospital stays and higher per-admission costs. Using a conservative estimate of $30,000 per admission:

- Reduction of four hospitalizations resulted in **≥ $120,000 in direct medical cost avoidance**.

This estimate does not include:

- Staff time during hospitalization
- Care coordination and discharge planning
- Family communication
- Post-discharge follow-up
- Risk of hospital-acquired complications

These indirect and operational costs are likely substantial.

Year	Number of Unanticipated Hospitalizations	Estimated Cost per Hospital Admission	Total Cost
2024	8	$30,000	$240,000
2025	4	$30,000	$120,000
Total Cost Savings			**$120,000**

Emergency Department Visits

Emergency department (ED) utilization declined by **43%**.

- Average cost of an ED visit in the U.S. in 2025[4]: $2,715
- Adjusted for the IDD population (×2 multiplier): $5,430 per visit

Reduction of three visits yields an **estimated direct medical cost avoidance of $16,290.**

As with hospitalizations, this estimate excludes staff time, supervision, documentation, transportation, and program disruption.

Year	Number of Unanticipated Hospitalizations	Estimated Cost per Hospital Admission	Total Cost
2024	7	$5,430	$38,010
2025	4	$5,430	$21,720
Total Cost Savings			**$16,290**

Total estimate direct medical cost avoidance: **≥$136,290**. This equates to approximately **$2,672 per person screened** in this study.

At 2026 HRST pricing, the ROI for this study was **638%** or for **every $1 invested, $7.38 was saved**.

This is a conservative estimate, as it excludes additional cost savings related to travel, documentation, staffing coverage, discharge coordination, and post-discharge or behavior-related support.

Impact on Quality of Life

Hospitalizations, ED visits, and behavioral crises significantly impact people with IDD beyond clinical measures. These events:

- Disrupt familiar routines and environments
- Increase stress and anxiety
- Risk regression in functional skills
- Interrupt social relationships and community participation
- Increase risk to preventable complications

Reducing these destabilizing events supports greater stability, autonomy, and overall well-being.

Key Outcomes

- **Demonstrated effectiveness across diverse Health Care Levels (HCLs)**
- **56% reduction in behavior-related unusual incidents**
- **50% reduction in unanticipated hospitalizations**
  → ≥ $120,000 estimated direct medical cost avoidance
- **43% reduction in ED visits**
  → ≥ $16,290 estimated direct medical cost avoidance

Total estimated direct medical cost avoidance: ≥ $136,290

This figure does not account for indirect administrative, staffing, or operational savings.

Discussion

The implementation of HRST screening across 51 adults with IDD was associated with substantial reductions in behavior-related crises and acute medical utilization, as indicated by comparisons between CY 2024 and CY 2025 data.

These findings support the hypothesis that systematic health risk screening using the HRST:

- Mitigates medically-driven behavioral events
- Enables early detection of medical destabilization
- Supports targeted, interdisciplinary interventions
- Reduces preventable acute care utilization

In addition to measurable financial impact, HRST implementation appears to enhance service stability and improve overall care quality for people with IDD.

Limitations

This evaluation has several important limitations:

1. **Small Sample Size:** The pilot included 51 individuals within a single provider organization, limiting generalizability.
2. **Non-Randomized Design:** The pre–post comparison lacks a control group, preventing definitive causal attribution.
3. **Estimated Cost Calculations:** Cost-savings estimates were derived from national average cost data, rather than actual claims data, and pediatric IDD research, given limited adult-specific cost data.
4. **Unmeasured Indirect Costs:** Operational efficiencies, staff time reductions, and quality-of-life improvements were not formally quantified.

Future research should include multi-site studies, larger sample sizes, longer-term follow-up, and formal economic evaluation using claims data.

Conclusion

A comparison of CY 2024 and CY 2025 outcomes following HRST implementation at Threshold Residential Services shows significant reductions in behavior-related incidents, hospitalizations, and emergency department visits.

These findings suggest that proactive, systematic health risk screening contributes to measurable clinical, operational, and financial benefits. While additional research is warranted, this pilot provides compelling evidence supporting broader implementation of HRST within IDD residential service systems.

References

[1]Lauer, E., Lindgren, S., Momany, E., Cope, T., Royer, J., Cogan, L., McDermott, S., & Armour, B. (2021). Health service utilization patterns among Medicaid-insured adults with intellectual and developmental disabilities. *Journal of Ambulatory Care Management*, *44*(2), 138-147. https://stacks.cdc.gov/view/cdc/112659

[2]Lindgren, S., Lauer, E., Momany, E., Cope, T., Royer, J., Cogan, L., McDermott, S., & Armour, B. (2021). Disability, Hospital Care, and Cost: Utilization of Emergency and Inpatient Care by a Cohort of Children with Intellectual and Developmental Disabilities. *The Journal of Pediatrics*, *229*, 259-266. https://doi.org/10.1016/j.jpeds.2020.08.084

[3]Georgia Department of Behavioral Health and Developmental Disabilities. (2024). *Annual IDD Mortality Report: CY2023*.

[4]Smith, B. (2025, Feb. 25). *Emergency Room Visit Cost With And Without Insurance (2025 Update)*. https://www.talktomira.com/post/how-much-does-an-er-visit-cost