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Introduction to Systems Engineering and Analysis
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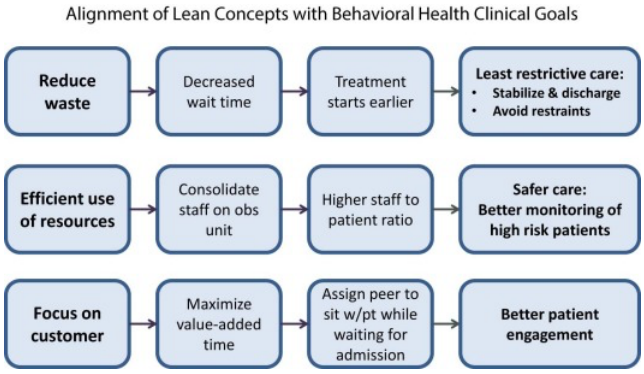
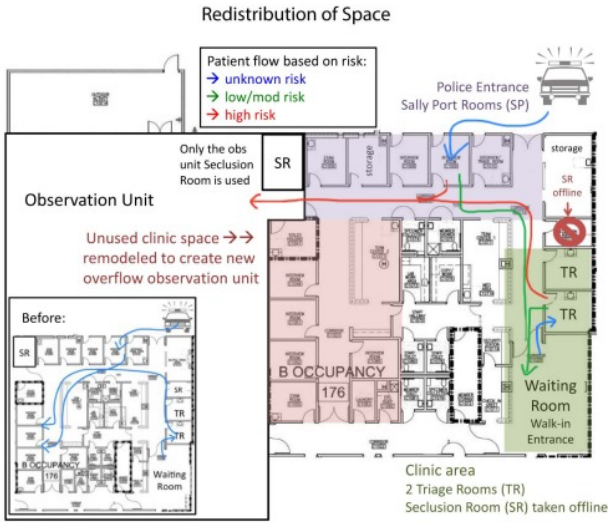
02/12/25

Validation of a Statistical Model for Behavioral Health Crisis Facility Efficiency

The Behavioral Health Crisis Facility faces long ED wait times, transfer delays, and staff safety risks, affecting patient care. A statistical model will analyze data from high-performing facilities to identify best practices and optimize patient flow and staff safety.





(Images from Watts, Brett V., et al. (2017),
The Joint Commission Journal on Quality and Patient Safety)

Technical Performance Measures (TPMs)

1. Staff Injury Rate – Tracks workplace safety.
2. Length of Stay (LOS) – Measures patient flow efficiency.
3. Time from ED to Psychiatric Bed – Assesses transfer delays.
4. Patients Transferred Within Target Time – Evaluates process improvements.
5. Patient Elopement Rate – Identifies security concerns.

Validation Plan

1. Gather & Review Data – Collect hospital records and compare with industry benchmarks.
2. Measure Current Performance – Identify past problems and inefficiencies.
3. Adjust the Model – Apply successful strategies from high-performing hospitals.
4. Test Different Scenarios – Simulate workflow changes to predict outcomes.
5. Check Accuracy – Compare model predictions with real hospital data.
6. Track & Improve – Keep monitoring results and fine-tune the model if errors exceed 10%.

Conclusion

This model will streamline patient flow, reduce injuries, and improve crisis care efficiency, creating a safer and more effective system.