

Hospital Length of Stay Model Analysis

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Summary

Predict the length of stay for patients in the hospital

Important Features:

- Disposition
- Diagnosis
- Procedure

Outline

- Business Problem
- Data Understanding
- Limitations
- Features
- Model/Evaluation
- Conclusion
- Next Steps

Business Understanding

- Healthcare Hospital Chain; improve resource allocation and patient care
- Goal: predict patients length of stay
- Increased knowledge → better healthcare management → overall growth

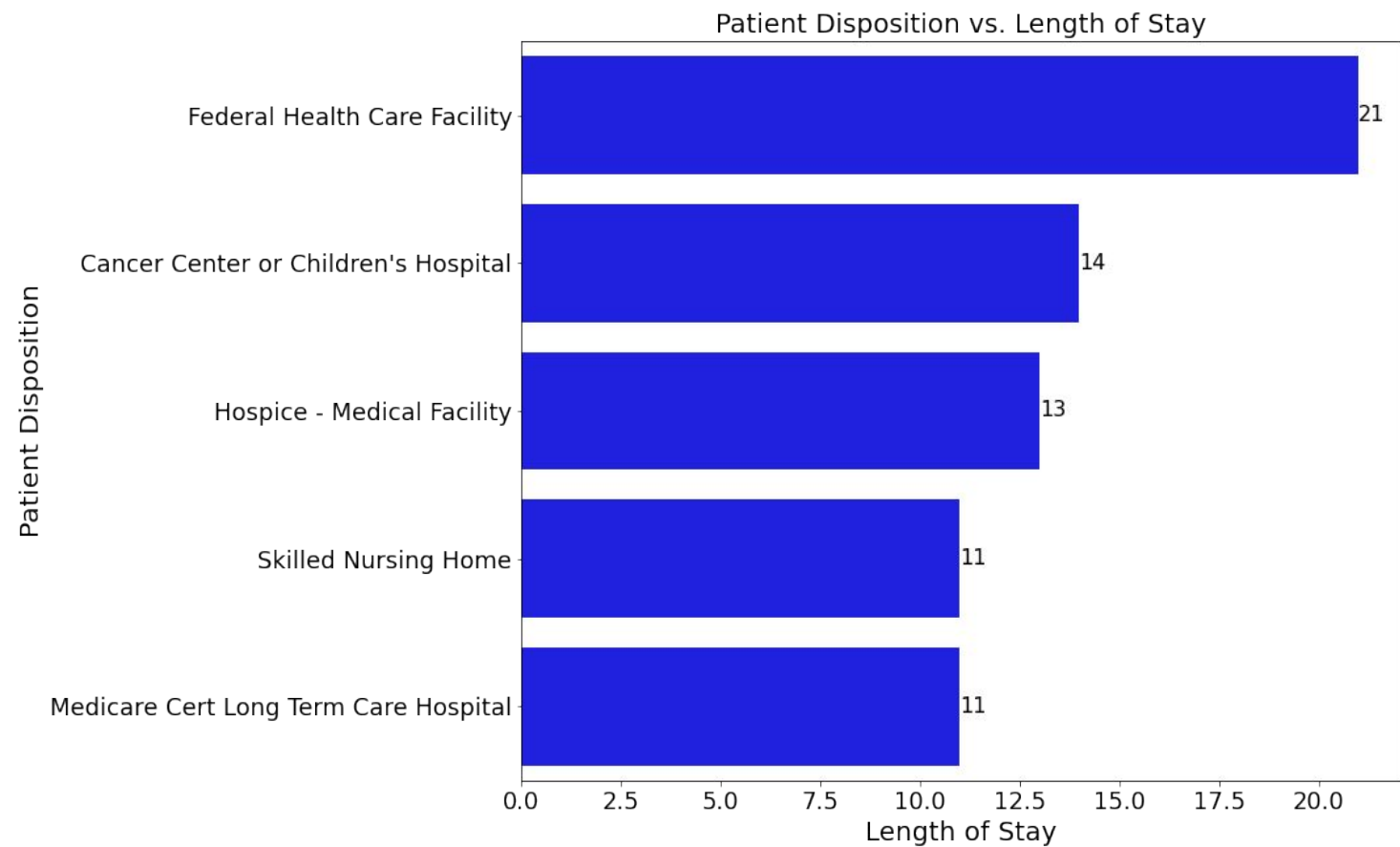
Data Understanding

- New York, Brooklyn, inpatient discharge data
- “The Statewide Planning and Research Cooperative System (SPARCS) Inpatient De-identified dataset. From patient characteristics such as age group, gender, race and ethnicity to diagnoses, treatments, services and charges.”
- 300,000 rows and 38 columns

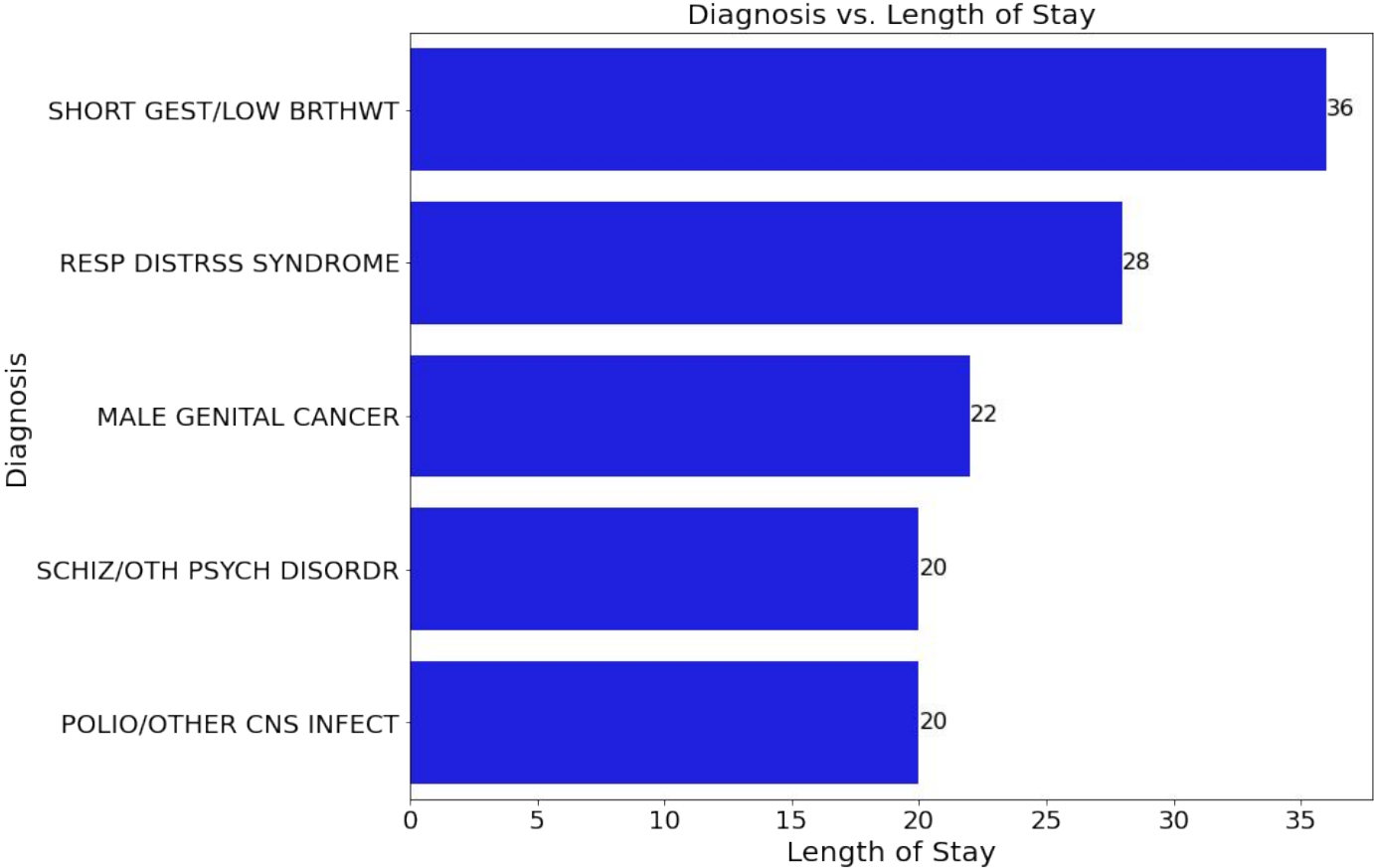
Limitations

- Account for all patient data
- Account for every length of stay
- Reproducibility:
 - One county, one city, hospital sizes
- Patterns/trends
- Data Enrichment

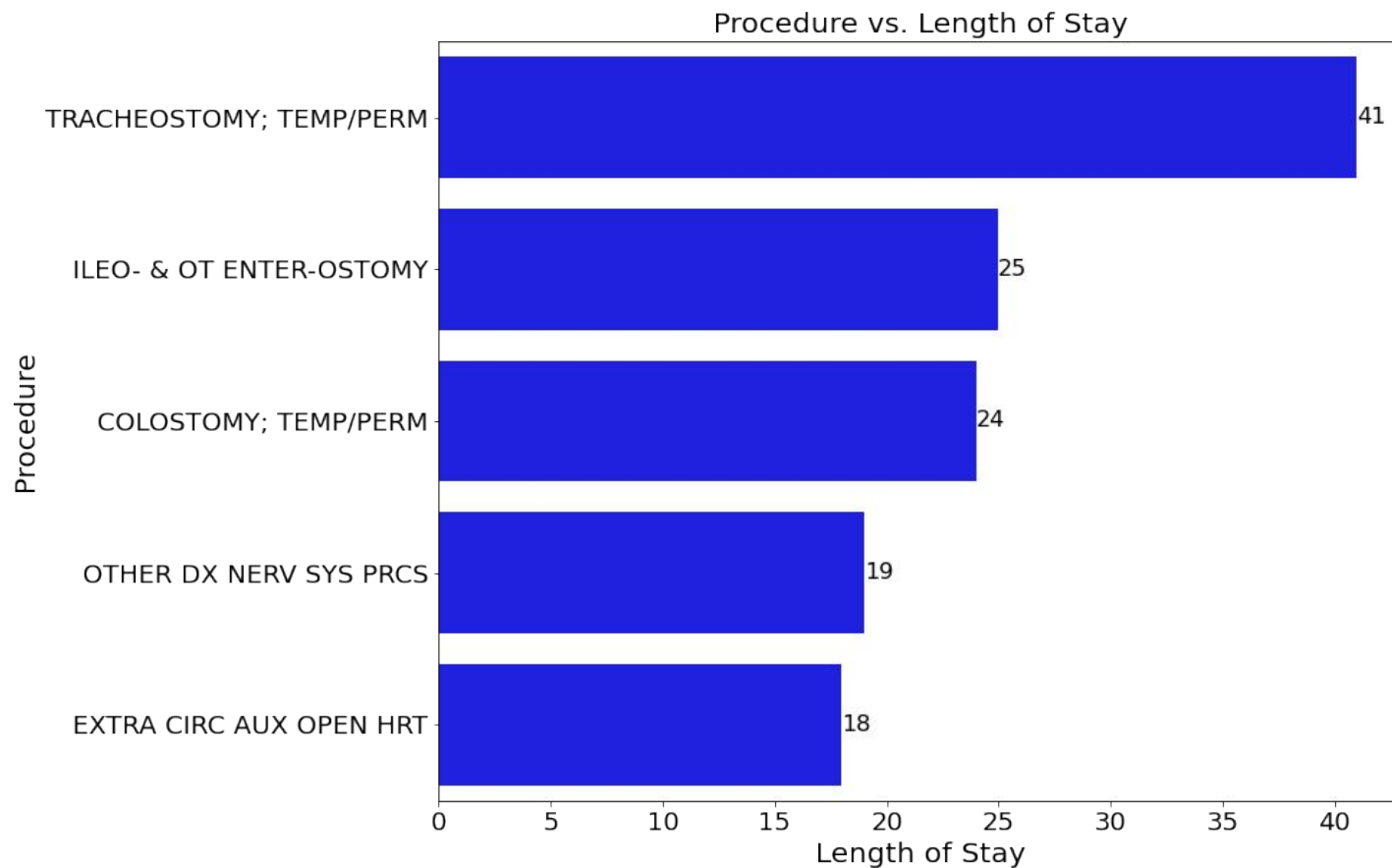
Feature 1: Disposition vs. Length of stay



Feature 2: Diagnosis vs. Length of Stay



Feature 3: Procedure vs. Length of Stay



Model/Evaluation

- Model = ~74%
- Error = 4.35 days
- Reproducibility

Conclusion

- Predict length of stay for patients
- Increased knowledge → better healthcare management → company growth
- Three features:
 - Disposition, Diagnosis, Procedure
- Model = ~74%

Next Steps

- Data Enrichment
- Gather patient data
 - Different counties
 - Different states
 - Different sized facilities
- More reliable/accurate model



Questions

Thank you!

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