Optimizing Hospital Costs: A Data-Driven Approach to Readmissions

Status Overview

- ~100,000 US hospital encounters over **10 years**

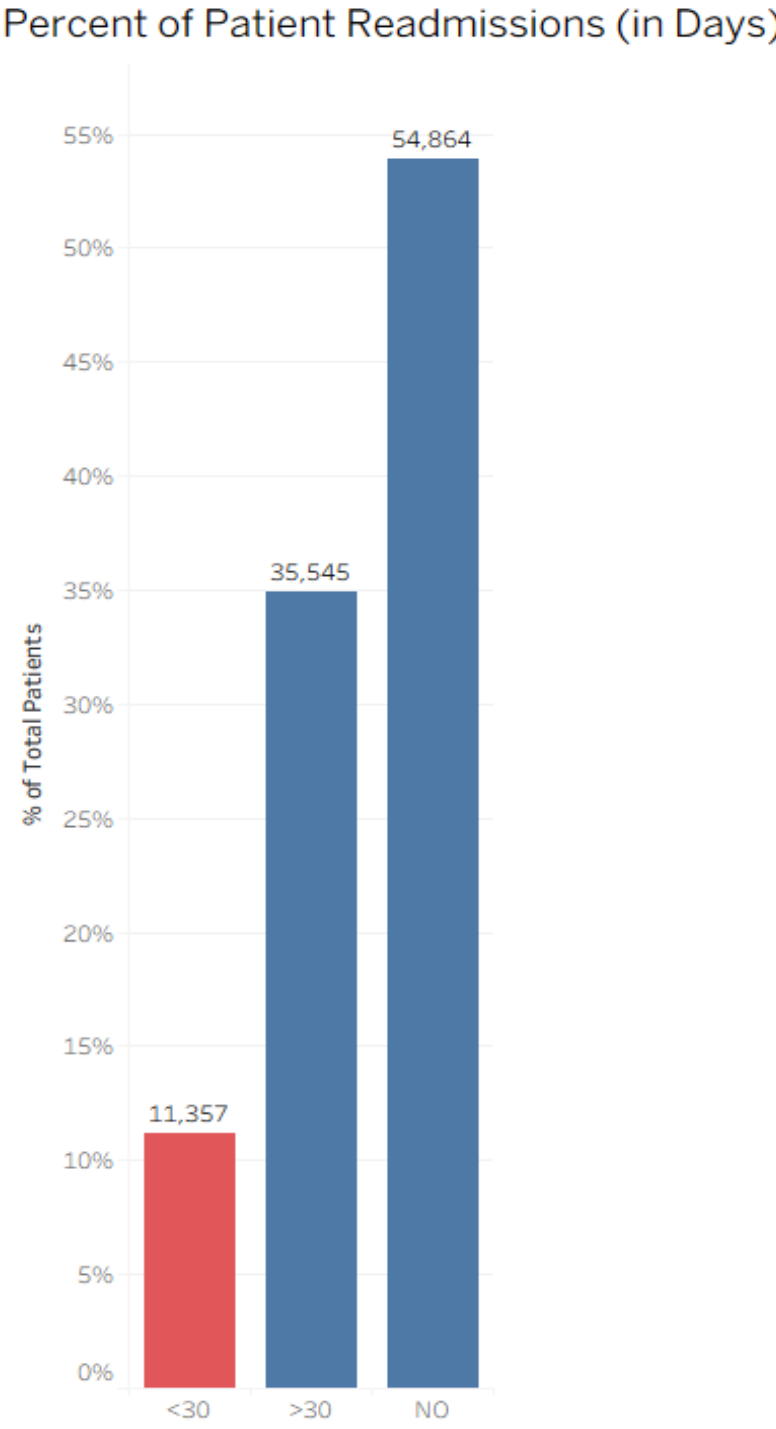
Key Problem:

- **Hospital readmissions within 30 days** trigger **financial penalties** from insurers & regulators
- Hospitals don't get paid again for the readmission

These readmissions increase costs and reflect potential gaps in patient care

Current Situation

- **53.9%** of patients were **not readmitted**
- **34.9%** were readmitted **after 30 days** (no penalty)
- **11.1%** were readmitted **within 30 days** → costly & penalized



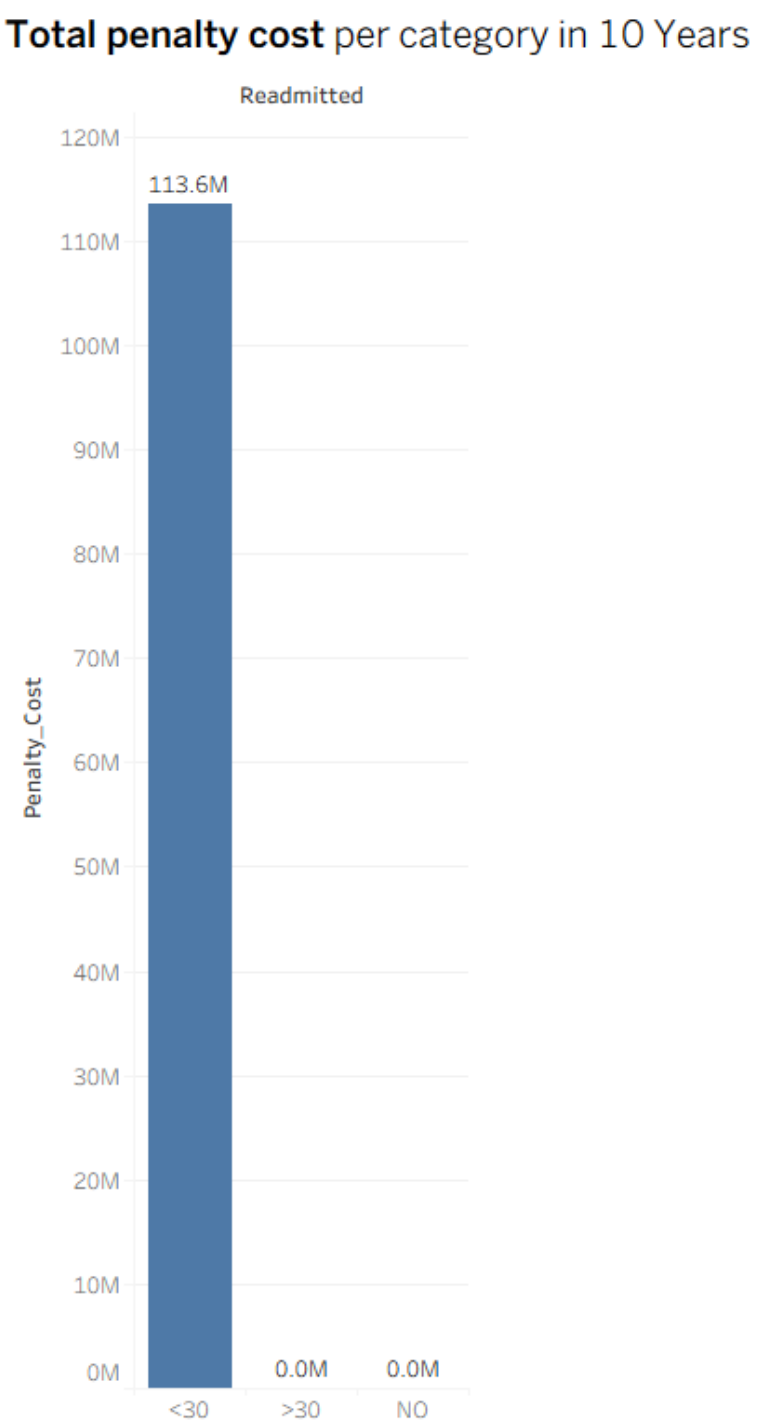
Total Penalty Cost

Cost per readmission:

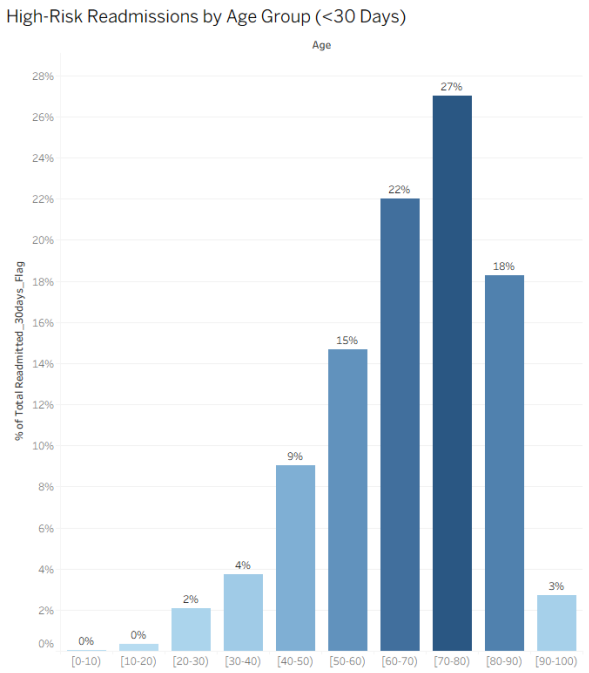
- Readmitted <30 days → penalty cost $10,000 per case
- Readmitted >30 days → no penalty .
- No readmission → $0 penalty

Based on U.S. healthcare reports

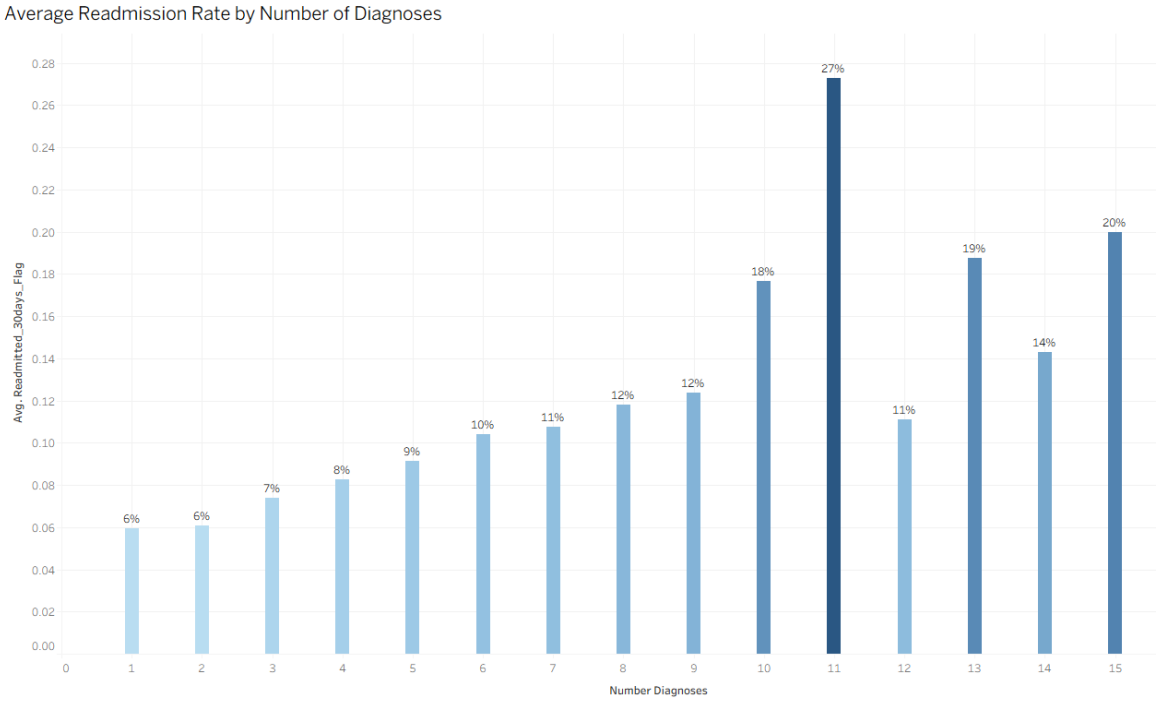
- Average hospital admission (treatment cost): ≈ $11,000 per patient.
- Medicare penalty for readmission <30 days: up to $10,000 per case.



Possible Reasons



Age

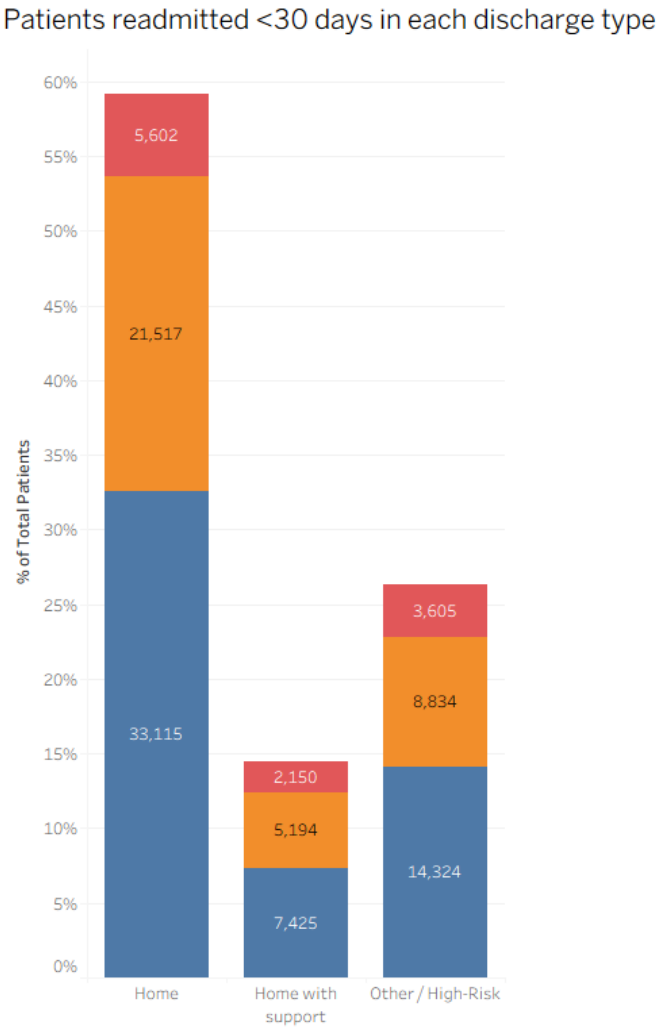


Multiple Diagnoses

Key Insight: Older patients with multiple diagnoses who are discharged home are the **most likely to be readmitted within 30 days.**

Discharge Type

Patients discharged to **home without support** have the **highest proportion of <30-day readmissions (10%)**, while patients discharged to care facilities or with follow-up support have fewer early readmissions (2%).



Category	Meaning
Home	Patients discharged home without additional support
Home with support	Patients discharged to rehab, skilled nursing, or home health services
Other / High-Risk	Patients discharged to other hospitals, left AMA, or hospice

Red = <30 days (early readmission)

Other colors = >30 days or NO readmission

Possible Solution

- Implement a **targeted follow-up care program** for this group → reduces readmissions, lowers penalties, improves outcomes.

*Reminder:

Based on U.S. healthcare reports

- Average hospital admission (treatment cost): ≈ $11,000 per patient.
- Medicare penalty for readmission <30 days: up to $10,000 per case.
- Follow-up care program cost (home visits, telehealth, checkups): ≈ $1,500 per patient.

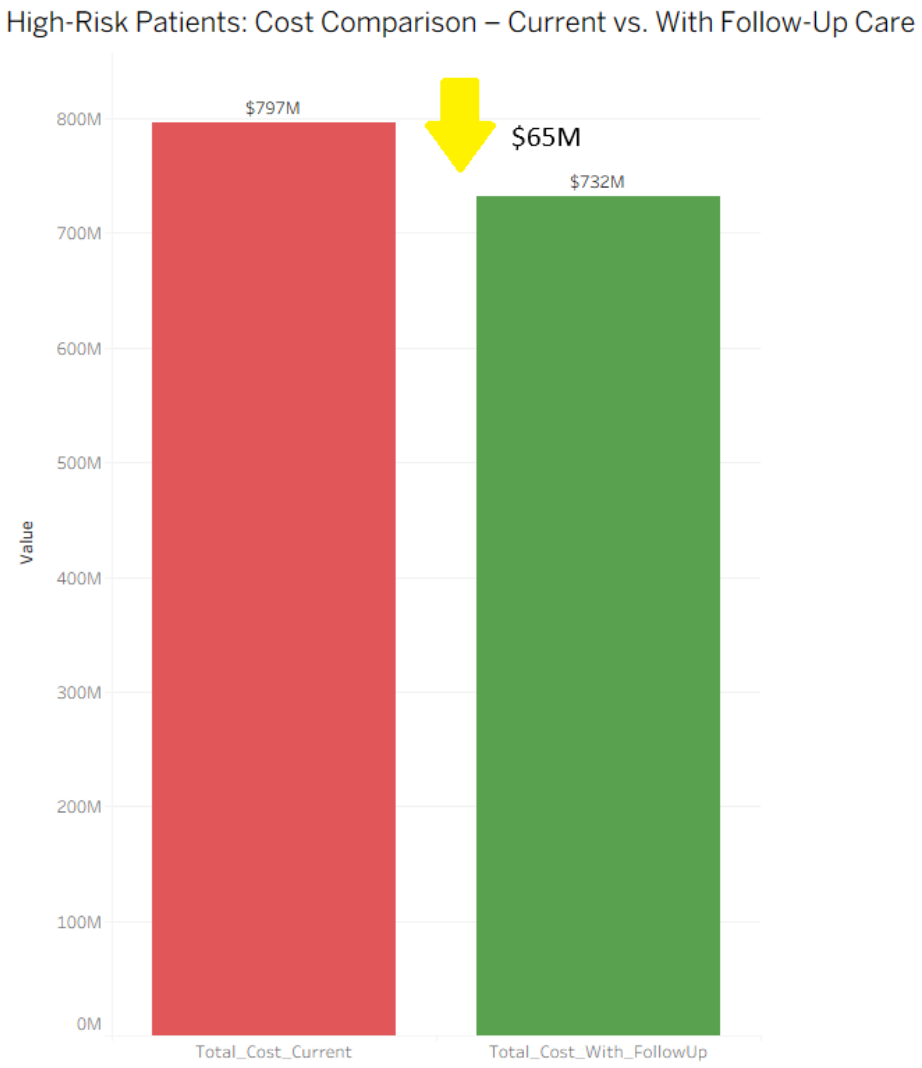
A/B Testing

High-Risk Criteria

- **Age ≥ 60** → older patients
- **Number of Diagnoses ≥ 3** → multiple chronic conditions

These criteria identify the patients who are most likely to be readmitted within 30 days.

- **Group A (Control):** High-risk patients receive standard discharge care (no follow-up program).
- **Group B (Treatment):** High-risk patients receive follow-up care program (calls, telehealth, reminders, home visits).



Total_Cost_Current = [Treatment_Cost] + [Penalty_Cost_Current]
Total_Cost_With_FollowUp = [Treatment_Cost] + [FollowUp_Cost]

Conclusion

- **Current Situation:** High-risk patients (older + multiple diagnoses) cost hospitals **$797M** due to treatment and penalties from 30-day readmissions.
- **With Follow-Up Care:** Implementing a targeted follow-up program reduces total costs to **$732M**, saving **$65M**.
- **Key Insight:** Investing in a follow-up care program for the high-risk group significantly reduces penalties, improves patient outcomes, and is **cost-effective**.
- **Revenue Perspective:**
- By preventing costly readmissions, hospitals protect revenue and avoid penalties, effectively turning a potential loss into **$65M in savings in 10 years -> $6.5M in one year**.