

Urgent Outpatient MRI Program for Neurology Patients Prevents Unnecessary Admissions

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Learning Objectives

1. Describe an urgent outpatient care model for patients with acute neurologic symptoms presenting to the emergency department (ED)
2. Discuss the cost savings related to prevented hospital days when inpatient imaging is deferred to the outpatient setting

Problem/Issue

In an academic hospital above 95% capacity, many clinically stable neurology patients are admitted solely for MRI imaging.

Goal

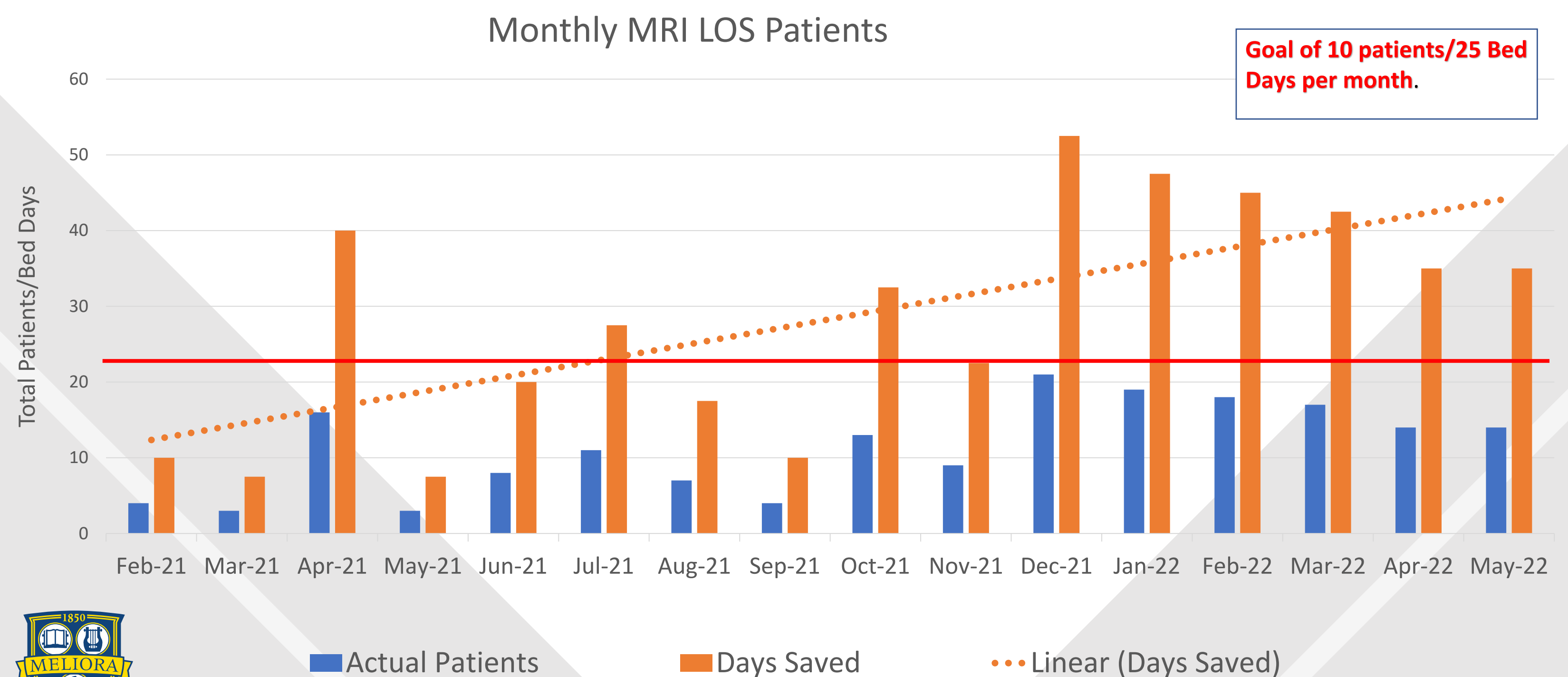
To prevent 10 admissions (25 hospital days) per month of clinically stable neurology patients who instead obtain urgent outpatient MRI imaging with follow up.

Change(s) implemented

- Neurology residents seeing ED consults selected clinically appropriate patients who had no inpatient needs, no difficulty ambulating, and imaging would not change inpatient management
- Most common candidate patients were:
 - new lifetime seizure, back to baseline
 - resolved transient ischemic attack
- Neurology resident places orders, contacts the radiology scheduling team, who schedules MRI with patient. Results were forwarded to the ordering neurology resident for communication, scheduling follow up, and management.
- Planning to expand indications and consider admitted patients

Data

Month	Actual Patients	ALOS	Estimated Days Saved	Incremental Cases for 5-1600	Monthly Net Increase	Monthly Revenue for Outpatient MRI	Total Revenue+ Net Increase
Feb-21	4	2.5	10	1.74	\$3,578.85	\$5,148.00	\$8,726.85
Mar-21	3	2.5	7.5	1.31	\$2,684.14	\$3,861.00	\$6,545.14
Apr-21	16	2.5	40	6.97	\$14,315.40	\$20,592.00	\$34,907.40
May-21	3	2.5	7.5	1.31	\$2,684.14	\$3,861.00	\$6,545.14
Jun-21	8	2.5	20	3.48	\$7,157.70	\$10,296.00	\$17,453.70
Jul-21	11	2.5	27.5	4.79	\$9,841.84	\$14,157.00	\$23,998.84
Aug-21	7	2.5	17.5	3.05	\$6,262.99	\$9,009.00	\$15,271.99
Sep-21	4	2.5	10	1.74	\$3,578.85	\$5,148.00	\$8,726.85
Oct-21	13	2.5	32.5	5.66	\$11,631.26	\$16,731.00	\$28,362.26
Nov-21	9	2.5	22.5	3.92	\$8,052.41	\$11,583.00	\$19,635.41
Dec-21	21	2.5	52.5	9.15	\$18,788.96	\$27,027.00	\$45,815.96
Jan-22	19	2.5	47.5	8.28	\$16,999.54	\$24,453.00	\$41,452.54
Feb-22	18	2.5	45	7.84	\$16,104.83	\$23,166.00	\$39,270.83
Mar-22	17	2.5	42.5	7.40	\$15,210.11	\$21,879.00	\$37,089.11
Apr-22	14	2.5	35	6.10	\$12,525.98	\$18,018.00	\$30,543.98
May-22	14	2.5	35	6.10	\$12,525.98	\$18,018.00	\$30,543.98
	181		452.5	78.83			\$394,889.97



Outcomes/Results

- Over 16 months (2/2021 - 5/2022), the program prevented 181 admissions (11.3/month), saving an estimated 453 hospital days.
- Based on average length of stay (2.5 days), direct variable daily costs, incremental resulting new cases, this increased hospital revenue by ~\$162,000, outpatient MRI revenue of ~\$233,000, total revenue by ~\$395,000.
- 81% of patients obtained their imaging within 7 days and 97% within 14 days. There have been no adverse outcomes to date.

Key takeaways and lessons

- A program that selected stable ED patients awaiting MRI imaging and discharged them with urgent outpatient imaging saved >180 admissions, >450 hospital days, and increased revenue by ~\$395,000.
- 97% of patients obtained imaging without 14 days. There were no adverse patient outcomes
- Moving non urgent imaging to the outpatient setting improved patient care (decreased hospital length of stay) and decreased healthcare expenditure

What worked well

- Implementation with neurology residency and neuro radiology

Required Speaker Disclosures

- The authors have no relevant financial relationships to disclose