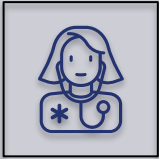**S3A-QI-5**

Reducing Turnaround time for Routine Inpatient Neurology MRIs to Improve Length of Stay

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No Disclosures

Our Health System has focused on identifying barriers of discharge and utilized our electronic medical record(EMR) to improve system-wide processes to reduce length of stay and control health care costs

The purpose of the study was to develop a "signal" in our EMR to identify patients pending discharge within 24 hours of an MRI result and alert the technologists and radiologists.

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Methods

Our team developed a "demand signal" in our EMR to identify which inpatients could be discharged within 24 hours of receiving imaging results

This would help technologists and radiologists to prioritize orders of the "demand signal inpatients" ahead of the other routine inpatients.

Our study excluded sepsis and obstetrics patients

"Demand signal" use was measured from March 2022 through August 2022, the results annualized and compared to the baseline metrics from May 2020 through May 2021

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Figure 1

We developed "demand signal" in our EMR identifying the patients that could be discharged within 24 hours of an MR order being placed and receiving imaging results

Initial pilot data demonstrated over 50 % of patients with "pending discharge" signal selected were discharged in less than 24 hours and 70% were discharged within 48 hours.

The average time reduction between the scan ordered and scan begin, scan end to dictation, and dictation to discharge were all significantly reduced ($p<0.001$).

Demand signal was used consistently across all the four hospitals of our health system

Annualized data analysis shows "demand signal patients" were associated with 300 inpatient days and 34.5 observation days less than controls; with variance annualized savings of $170,595 for our health system

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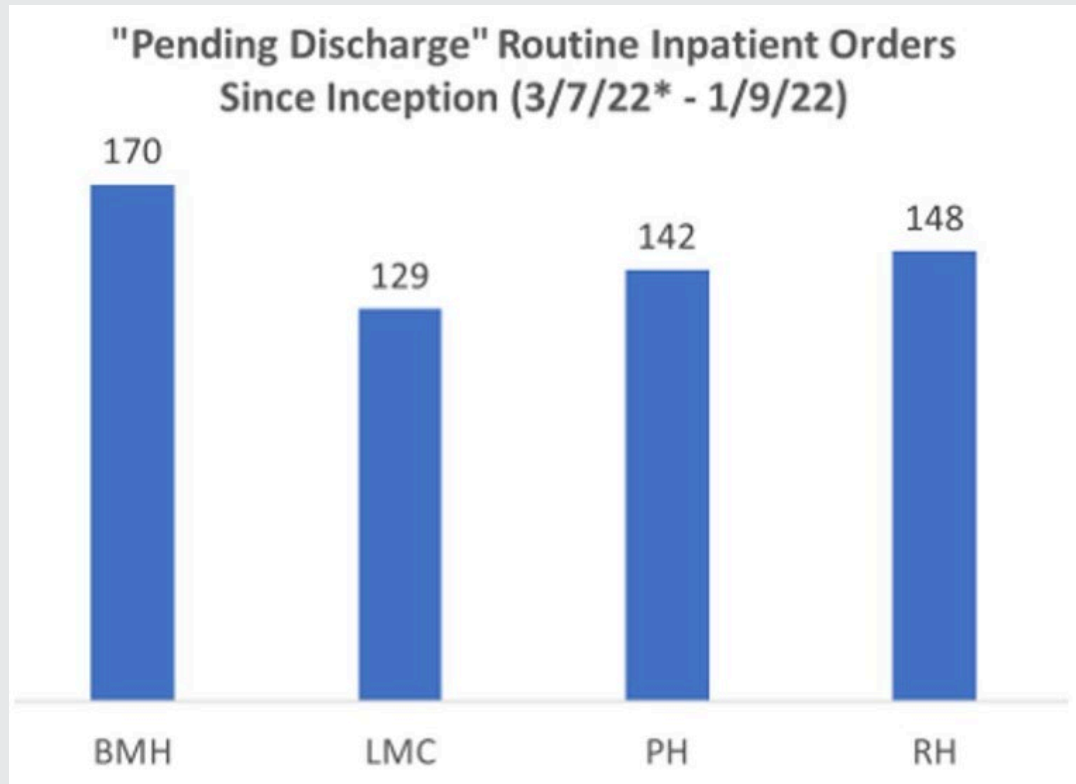Hours from Finalized/Dictation to Discharge
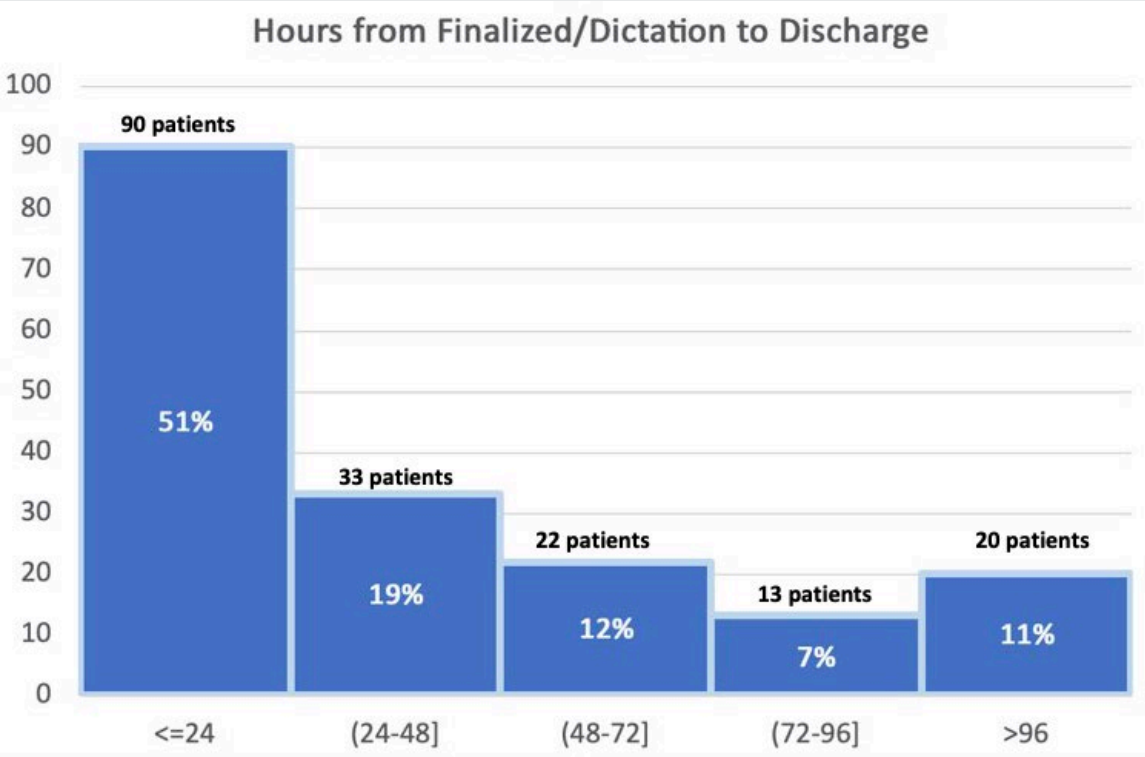
Figure 2

Hours from finalized dictation to discharge

70% patients being discharged within 48 hours of the finalized reports

	Average time from scan order to scan begin	Average time from scan end to results dictated	Average time from dictation to discharge
	HOURS		
All Routine Inpatients	17	4.55	84
Demand Signal Inpatients	9	3.1	40.6

Figure 3

Hourly time reduction (statistically significant $p < 0.001$) across different time frames when utilizing "demand signal"

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"Pending Discharge" Routine Inpatient Orders Since Inception (3/7/22* - 1/9/22)

BMH: 170, LMC: 129, PH: 142, RH: 148

Figure 4

Consistent usage of the "demand signal" across 4 different campuses

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Figure 5

Annualized length of stay and financial impact/savings of the "demand signal"

March 2022 - August 2022	Volume		Median Length of Stay (IQR) (Days)			Variance Demand Signal Cases vs. All Cases			Variance - annualized	
	a	b	c	d		e	f	g	h	i
	With demand signal	All other	With demand signal	All other	p-value	Per case	Total time (a *e)	Total dollars (e * $510 per day)	Total time (days)	Total dollars
Observation	46	3612	0.85 (0.7-1.38)	1.04 (0.75-1.7)	0.049	-0.1875	-8.625	($4,399)	-34.5	($17,595)
Inpatient	75	5321	2 (1-3)	3 (2-5)	0.0001	-1	-75	($38,250)	-300	($153,000)
Total	121	8933						($42,649)		($170,595)

❑Implementing "demand signal" was associated with significant impact on length of stay and reduced health care costs for our system

❑This has other secondary effects such as reducing ED holds by opening bed faster, especially when health systems are seeing record patient volumes

❑Next steps include leveraging similar opportunities and scaling it to inpatients undergoing other imaging exams such as CT and Ultrasound with the goal of achieving larger impact for the health system.

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