



DONALD AND BARBARA
ZUCKER SCHOOL *of* MEDICINE
AT HOFSTRA/NORTHWELL

Improving MRI “Order-to-Scan” Times in an Inpatient Quaternary Academic Hospital Setting: Our Revitalization Project

Ritesh D. Patel, MD

Richard B. Gordon, MBA
Helise R. Coopersmith, MD



INTRODUCTION

- Quaternary care centers inherently bring increased diversity and complexity of cases resulting in increased order-to-scan (OTS) times for imaging
- Increased OTS times can lead to increased length of stays (LOS) and costs, as well as, decreased quality of care
- Therefore, there is a growing need for new efficient, equitable, and cost-effective strategies to offset these delays



PURPOSE

- To significantly reduce inpatient (IP) MRI order-to-scan (OTS) times through the implementation of multiple process improvement strategies
 - At the start of 2022, >20% of all inpatient IP MRIs had an OTS time of >48 hours; some >100 hours.



METHODS

CURRENT STATE

- No scanner utilization data
- ONE radiologist managing complex clinical discussions with ordering providers
- Limited privileges allotted to working supervisor
- Lack of proper use of “order to Dtime” function
- “*Problem*” studies sitting on the list for days

PILOT INTERVENTIONS

- Obtain scanner utilization data and analyze to identify cases contributing to extended OTS times
- Expand privileges of working supervisor to manage clinical workflow instead of radiologist
- Educate accurate use of “order to Dtime” function
- Develop EMR integrated MRI screening questions/form to be completed at the time an order is placed

- Incomplete screening forms



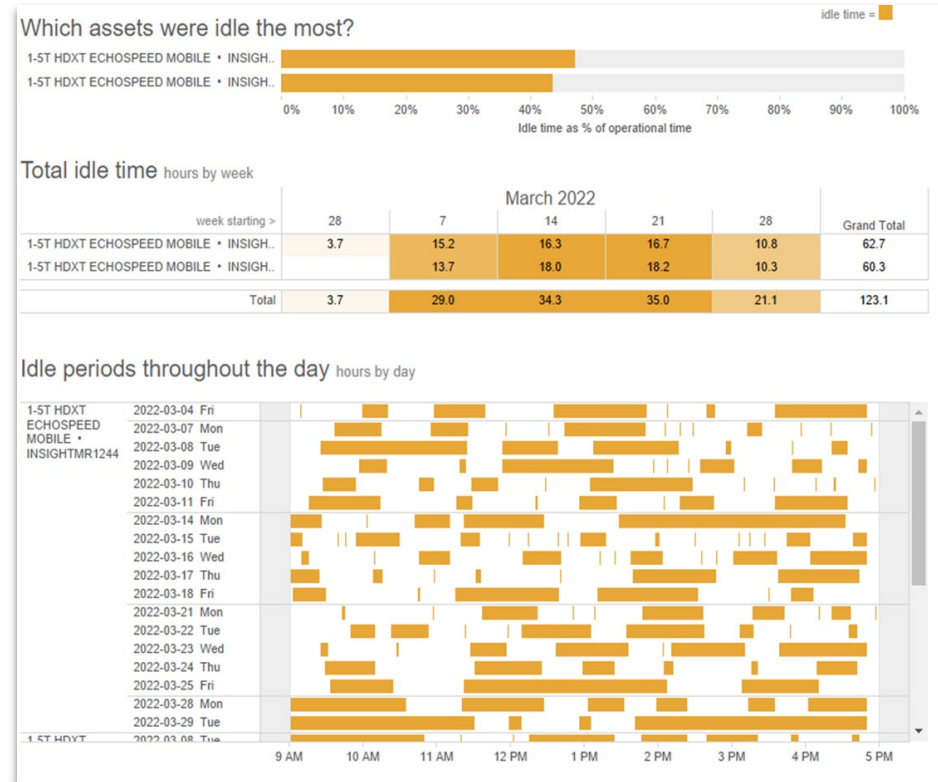
METHODS - Scanner Utilization Data

- Acquired scanner utilization metrics via MR vendors

- Identified scanner idle times and common causes of delays

- Examples of cases which contribute to idle table time

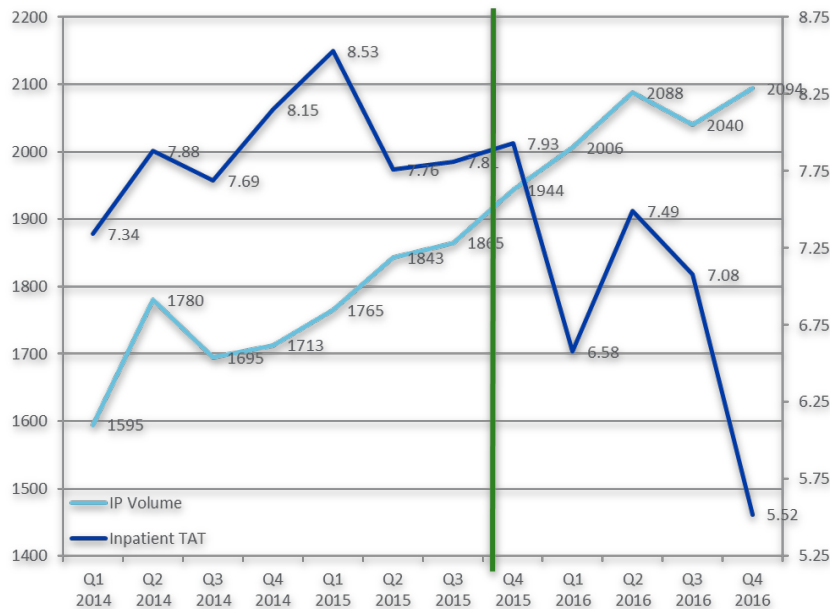
- Anesthesia Cases
 - Surgical Procedure (Laser Ablations)
 - Claustrophobic Patients





METHODS

- Expand privileges of working supervisor to manage clinical workflow
 - Content expert
 - Evaluates “problem” cases (cases on hold, improper uses of “order for Dtime”, etc.)
 - Only contacts radiologist when necessary
 - Previous success in CT workflow (below)
- Radiology Service Line collaborated with the ED/IP service lines and EMR team to design MRI screening questions at time of order
 - Sample questions
 - (1) presence of a pacemaker
 - (2) history of claustrophobia
 - (3) patient’s ability to communicate



Post go live

NORTHWELL HEALTH
SOUTH SHORE UNIV HOSPITAL
RADIOLOGY CONSULTATION REQUEST ROUTINE

PT NAME: M RISSUHOP , T ESTOP		MR#: 821361
ADDRESS: 26 E MAPLE ST		ACCOUNT: 1764219224
CITY/ST/ZIP: CENTRAL ISLIP, NY 11722-		LOCATION: TEL
DOB/AGE/SEX: 07/09/1967 54Y MALE		HOSP SVC: ASU SSH Ambulatory Surg
PT CLASS/TYPE: O AMBULATORY SURGERY		ATTENDING: SAIMA ALI
REQUEST LOC: ASU		

ORDER DATE/TIME (system): Mar 3 2022 12:09PM	REQ FOR DATE/TIME: Mar 3 2022 12:09PM	ORD PROVIDER: A42762 FATIMA ANJUM OFF: (516)465-5400 FAX: GROUP/TEAM: Provider Info: Alt Beep#:	SVC: ASU	ORD BY: Iijm1 ASU
PROCEDURE ORDERED: XMR 8213 – MR ABDOMEN OC – Ord #: 90004			ACC #: 60002505	PRIORITY: ROUTINE
ADMIT DIAG: R10.9 UNSPECIFIED ABDOMINAL PAIN				

CLINICAL HISTORY: test history
CLINICAL INDICATION: Test indication
ADDITIONAL INFORMATION:

PREV PROCEDURE DATES BY BODY PART:	RENAL STATUS:
PREV PROCEDURE DATES BY MODALITY: 030322XMR-MR ANKLE WAW IC BI	CRE: CRCLDATE: BUN: WT: GFR: HT: RENAL FAILURE: DIALYSIS: No

MRI POTENTIAL CONTRAINDICATION: Y	CAUTION PREG:
Neurostimulator: No Pelle Prosthes: Yes Surface Metal: No Cochlear Implant: No Prosthetic Limb: No Other: No	ALLERGY HISTORY 1. 2. 3. 4.
TRANSPO WHEELCH FALL RISK U	Is Pt Not AAQx4: No
CONSCIOUS SEDATION? N ISOLATION: NONE w/mon?: O2 IV VENT:	DIABETES: SICKLE CELL: MULTI MYELOMA: PREVIOUS REACTION:

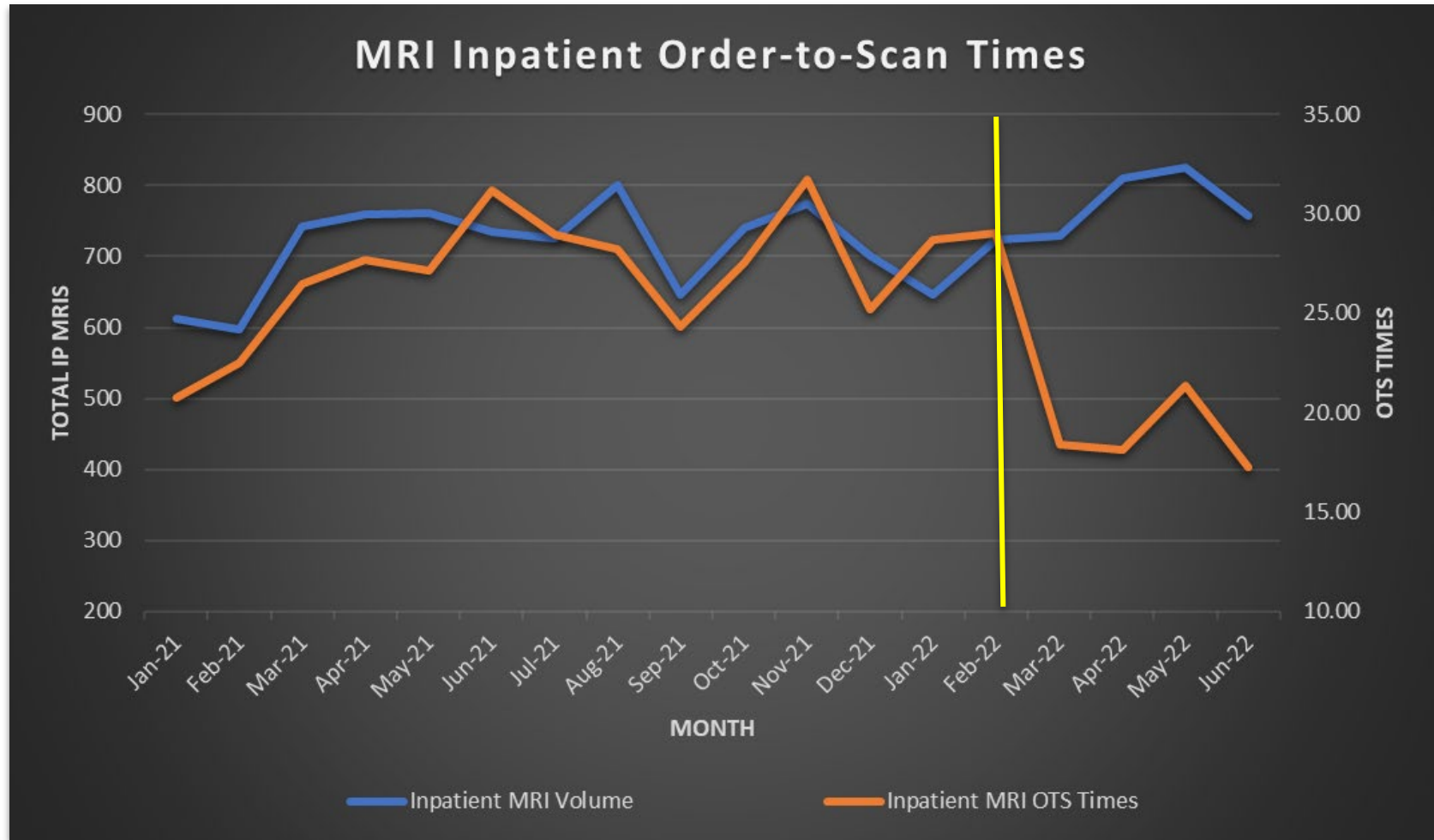


RESULTS

	PRE-INTERVENTION		POST-INTERVENTIONS			
	January 2022	February 2022	March 2022	April 2022	May 2022	June 2022
Average OTS (hours)	28.7	29.1	18.40	18.12	21.33	17.24
Total IP MRs	646	723	730	811	825	758
IP MRs >48 hours (%)	25%	23%	5%	3%	4%	3%



RESULTS





DISCUSSION/CONCLUSION

- Implementations:
 - Acquisition and analyzation of MR scanner utilization metrics
 - MRI manager with increased privileges to manage the workflow
 - Detailed MRI screening questionnaire at the time of ordering
- Significant decrease in OTS times by up to 40% despite 5-10% increase in IP MR volume
 - 29 hours to 17 hours
- Significant reduction in cases pending >48 hours
 - 23% to <5%