

# Get Insights: Improve Data Visibility

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# Background

Proof of Concept Collaboration between Houston Methodist Willowbrook & GE to examine MR machine data & workflow observation data to understand:

- If there are any valuable workflow indications in the machine data
- If there are any actionable improvements to optimize the MR department

Data range Jan 1 – Apr 30, 2014

**2623 Total Exams**

# What is MRI? What are operational challenges?



## Basic exam workflow

- Patient prep
- Start exam (patient on table)
- End exam (patient off table)
- Walk patient out
- Repeat

- ? Time between exams
- ? Time between sequences
- ? Time variances between staff

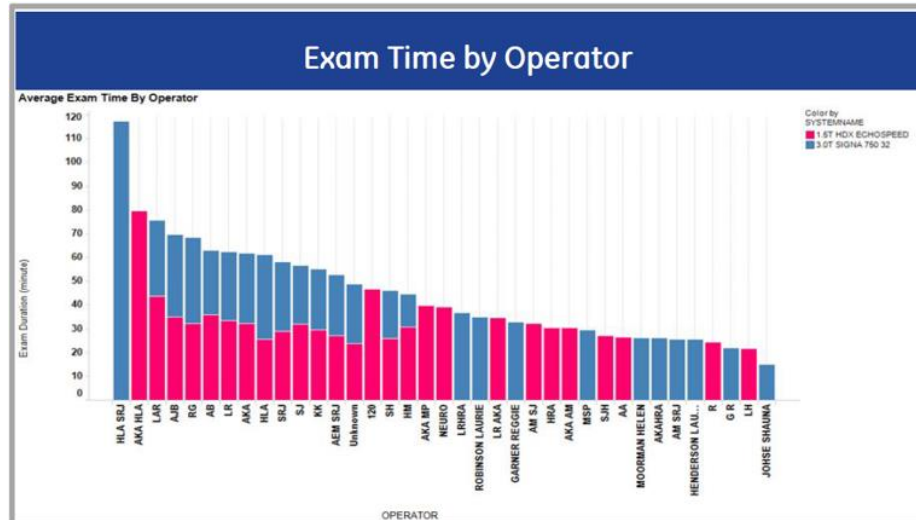
Increase  
Capacity

# Data Markers We Tested

- Exam time & volume by exam type
- Gap time between MR series
- Number of MR series
- MR protocol variation
- Utilization & volume over time

# Exam time & volume by exam type

Description	Top 5 Volume	Avg. Time (min.) 1.5T/3T	Cumulative scan hours 1.5T/3T
<p><b>Goal:</b> To determine how are assets currently utilized. Is exam type mix optimal for customer?</p> <ul style="list-style-type: none"> <li>✓ Exam volume by exam type</li> <li>✓ Average time per exam type</li> <li>✓ Total time per exam type</li> <li>✓ Possibly by user as well</li> </ul>	Brain (947)	30/20	120/240
	Spine (789)	~30	180/176
	Ext. (258)	~40	60/100
	Knee (223)	28/30	40/58
	Abd (173)	28/27	58/22
	<ul style="list-style-type: none"> <li>• Volume by Operator was able to be determined</li> <li>• <b>Not able to correlate data</b> for interpreting Radiologist, as this is not known (thus cannot be entered) at time of scan set -up. <b>NOTE: This will apply to all markers.</b></li> </ul>		



# Exam time & volume by exam type



## Brain MRI exams

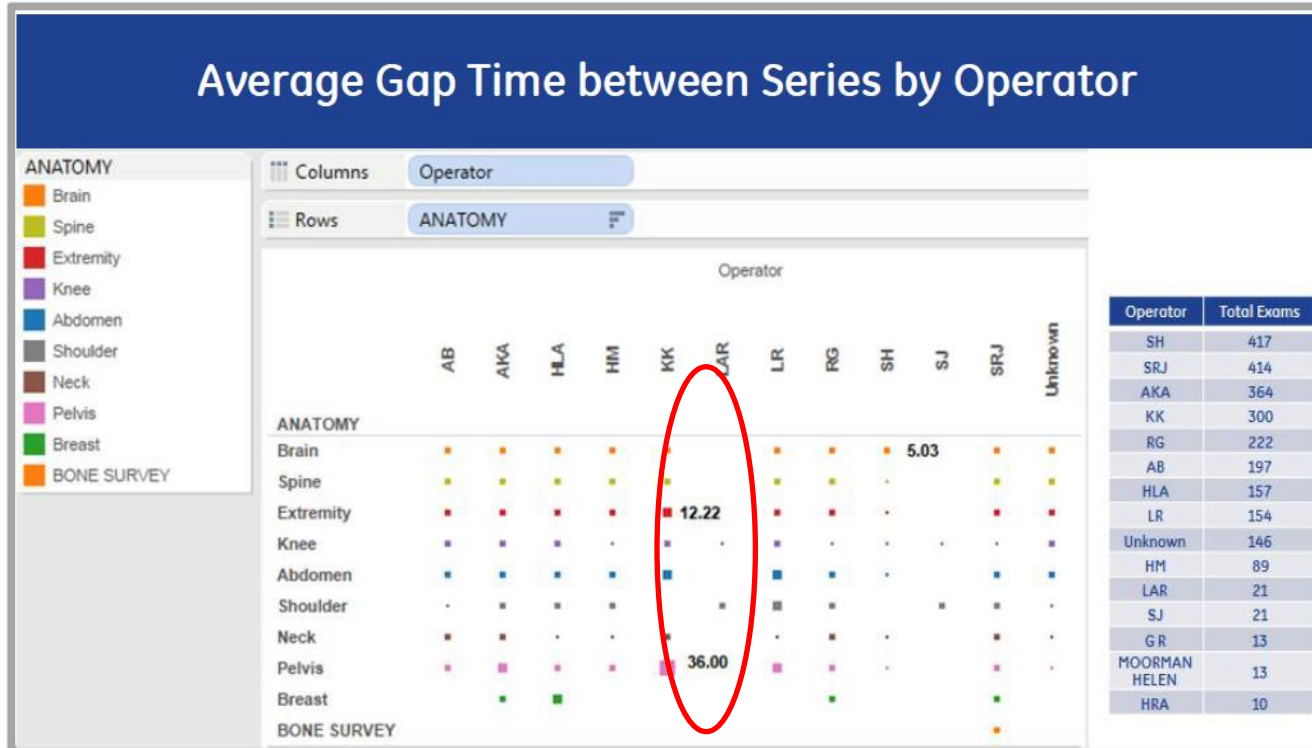
30% gap ratio on Scanner 1 (3.0T)  
as compared to a  
20% on Scanner 2 (1.5T)



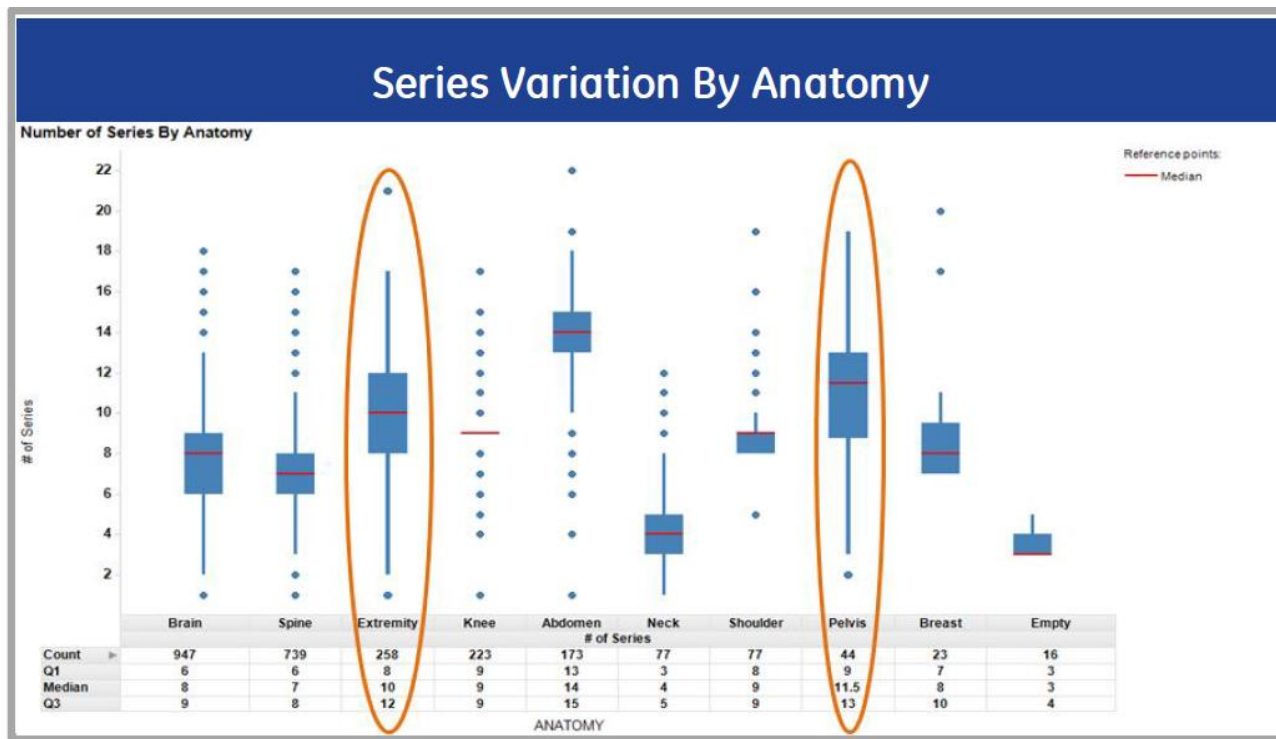
## Abdomen exams

31% gap ratio on Scanner 1 (3.0T)  
as compared to only a  
20% on Scanner 2 (1.5T)

# Gap between series by operators

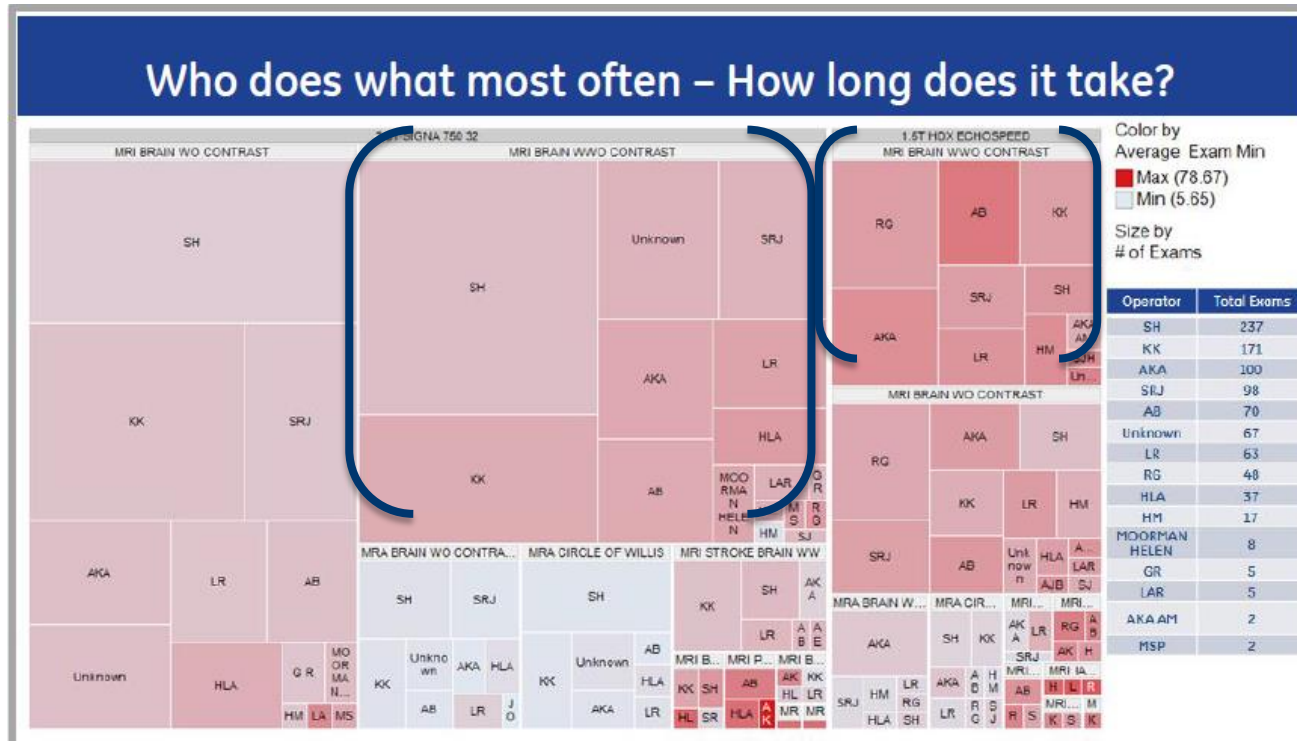


# Series per exam

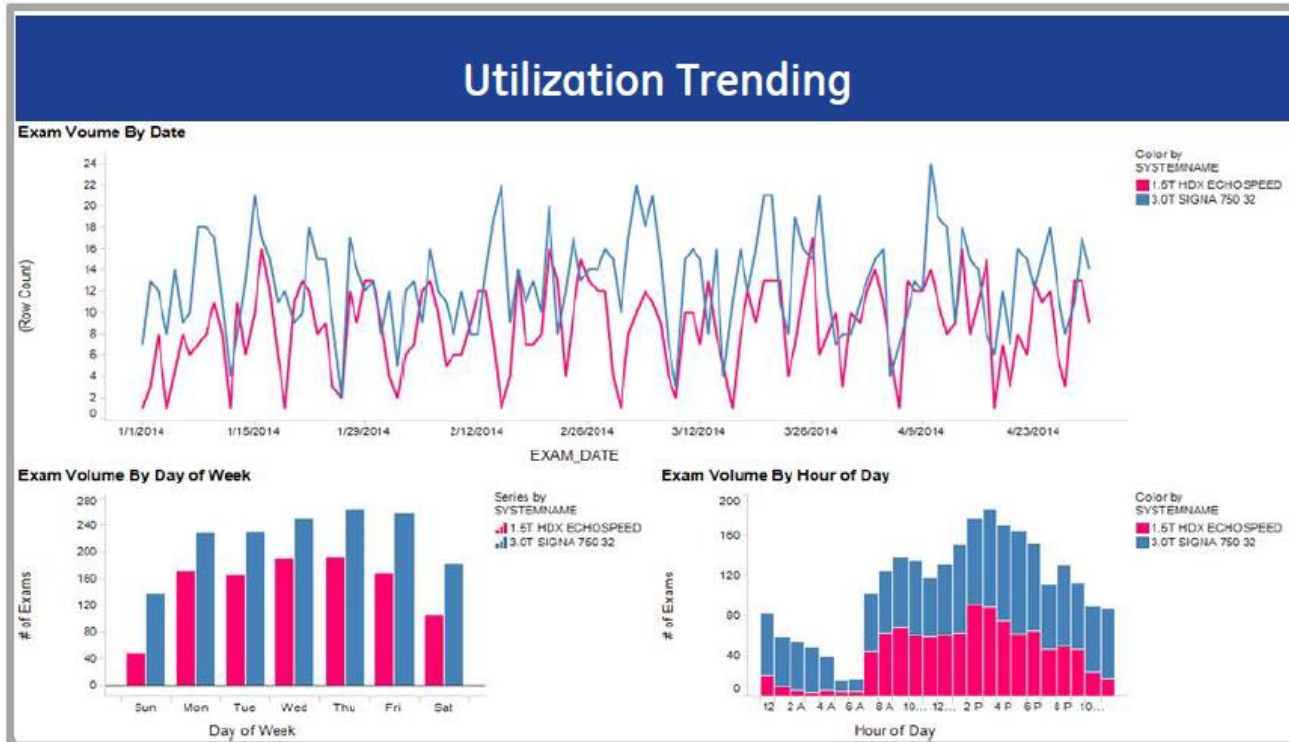




# MR protocol variation



# Utilization and volume over time



# Executive Summary: Willowbrook Findings

- **Exceptional Patient Exam Experience:** Identified lots of Best Practices
- **Standard Care:** Exam time & number of series have little variation regardless of Shift/DOW
- **Protocol Standardization:** Have identified the exams to standardize (Abd, Pelvis & Extremity) based on variation in practice data.
- **3T system has higher utilization:** Neuro case mix & Propeller SW likely drivers
- **Tech Utilization:** Techs are responsible for most steps in the Pt exam experience for Inpatients & Outpatients. Many tasks could potentially be done by a different level of resource without changing care pathway steps/tasks.



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