ICE2025
IMAGING CONFERENCE & EXPO
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Appropriate Utilization of Hospital Resources to Optimize Care and Department Efficiency

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THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

Learning Objectives

- After attending this continuing education unit, attendees will be able to:
- Evaluate the efficiency of an imaging department's operations to ensure imaging access for the right patient at the right time
- Recognize the importance of assessing a department culture and fostering team engagement
- Understand the significance of collaboration and engagement with high-impact interdisciplinary teams
- Implement sustainable change through utilization of Lean methodology

Agenda

- Introductions and Organizational Overview
- **Why:** Increase MRI demand
- **Objective:** Determining Necessary Adjustments
- **Strategy:** Executing the Proposed Changes
- **Outcomes:** Evaluation of Current Progress
- **Insights:** Reflections and Key Takeaways
- **Future Plans:** Mapping Out Next Steps

About us

Presenter Introductions

Lauren Bergstrom, DNP, RN

- Associate Director of Hospital Imaging

Imaging Services Enterprise-wide

Annette Long, RT.R, MR, MRSO

- MRI Imaging Manager

Imaging Services UH/James

- Department optimization at The Ohio State University Wexner Medical Center would not be successful without the entire LSS project core team and the collaboration from the Inpatient MRI department, Radiology's Analytics expert, Radiologists, interdisciplinary ordering providers, the Analytics Center of Excellence, and the Diagnostic transportation department.

Disclosure Statement

The following presenters of this continuing education unit has no relevant financial relationships with commercial interests to disclose:

- Lauren Bergstrom DNP, RN
- Annette Long RT(R)(MR)MRSO

About The Ohio State University Wexner Medical Center

We’re central Ohio’s only academic medical center

7
hospitals

1,404
staffed beds

17
multispecialty centers

24,500+
Employees

100+
facilities






THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

Facts and figures

Nationally ranked academic medical center

On the campus of one of the nation's largest public universities

Ranked for **31 consecutive years** by *U.S. News & World Report "Best Hospitals"*

Magnet recognition from the American Nurses Credentialing Center

1,404
staffed beds

24,507
employees

60,713
patient admissions (FY23)

2,745
faculty researchers

3.4M
outpatient visits (FY23)

225,000
telehealth visits

20 research centers and institutes

Hospital Tower

- Scheduled to open in 2026
- Largest single facilities project ever undertaken at Ohio State at 1.85 million square feet
- 820 large, private rooms
- 148 additional beds for patients of the OSUCCC – James
- 51 neonatal intensive care unit bassinets

Why:

Increase in MRI orders and current department performance

Background

Why Optimize?

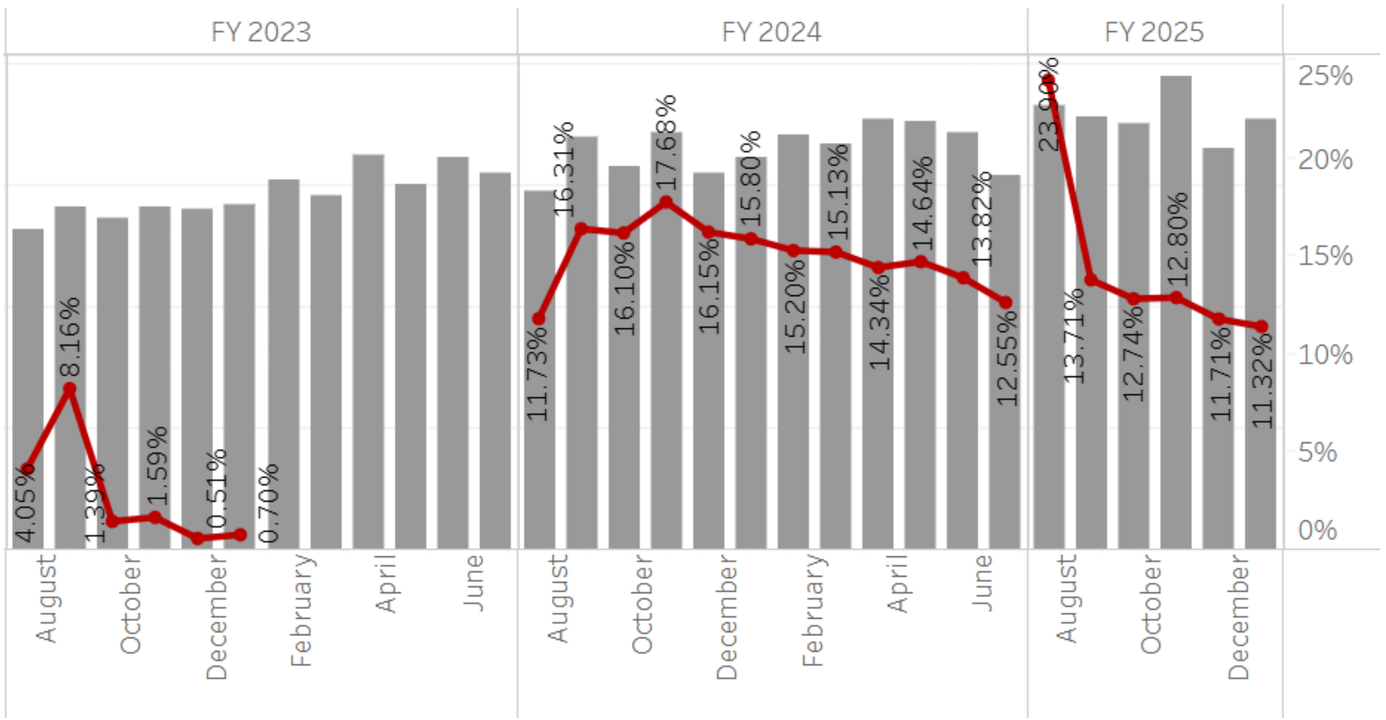
- Unable to meet MRI demand
  - Aging population resulting in increased MRI orders

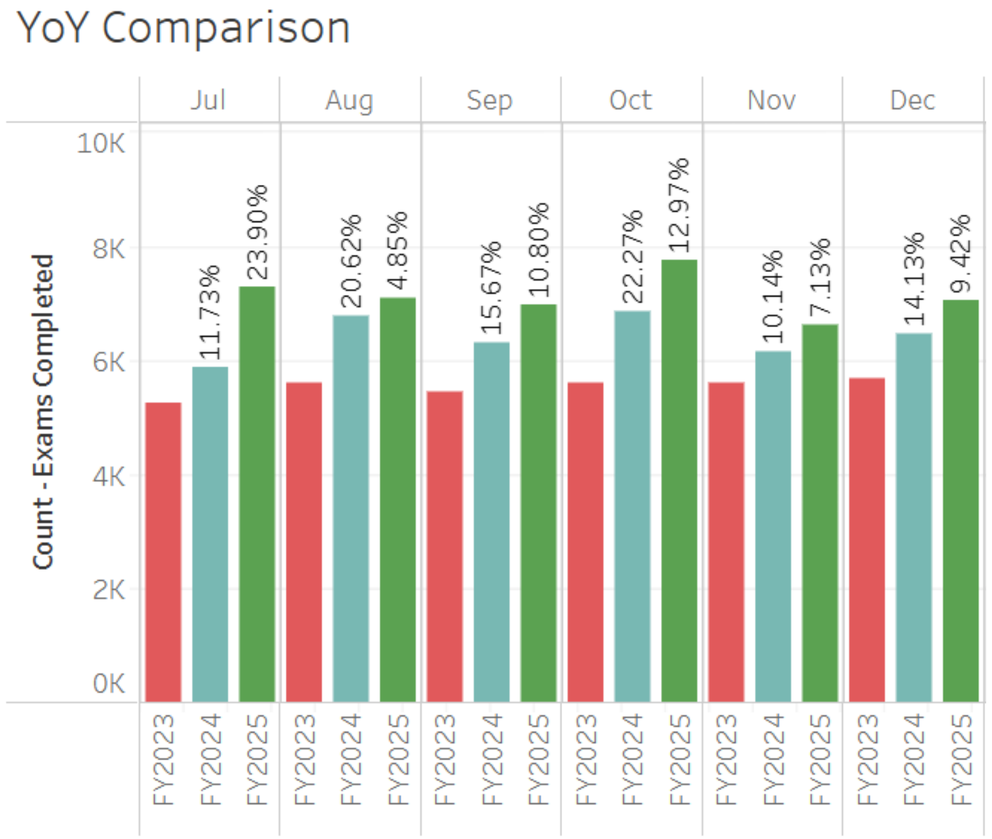
- Delays in care result in
  - Inability to care for the patients
  - Increased length of stay
  - Increased expenses for inpatient units
  - Loss of revenue
  - Increase in the number of patient complaints
  - Event reports related to delay in access to MRI

If you cannot measure it, you cannot improve it

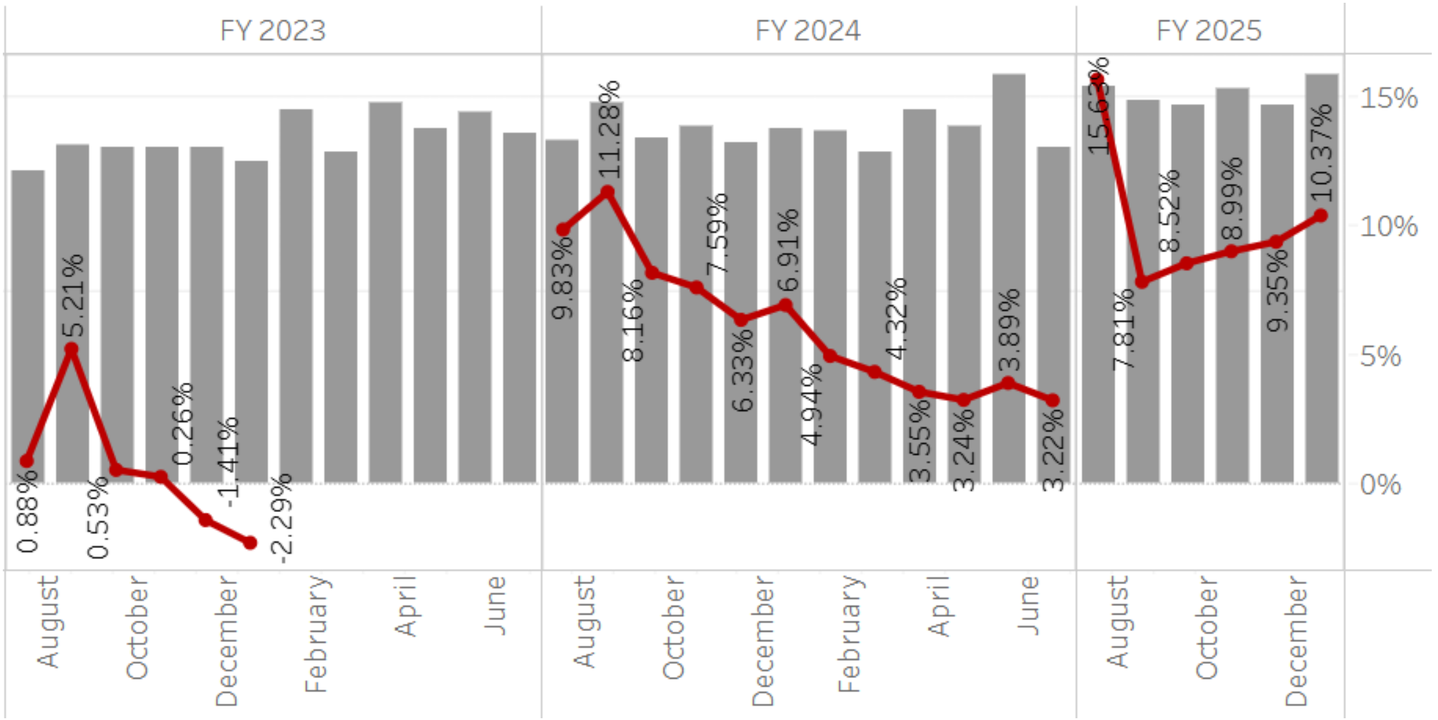
Measurement Words from Lord Kelvin – Great 19th Century Physicist

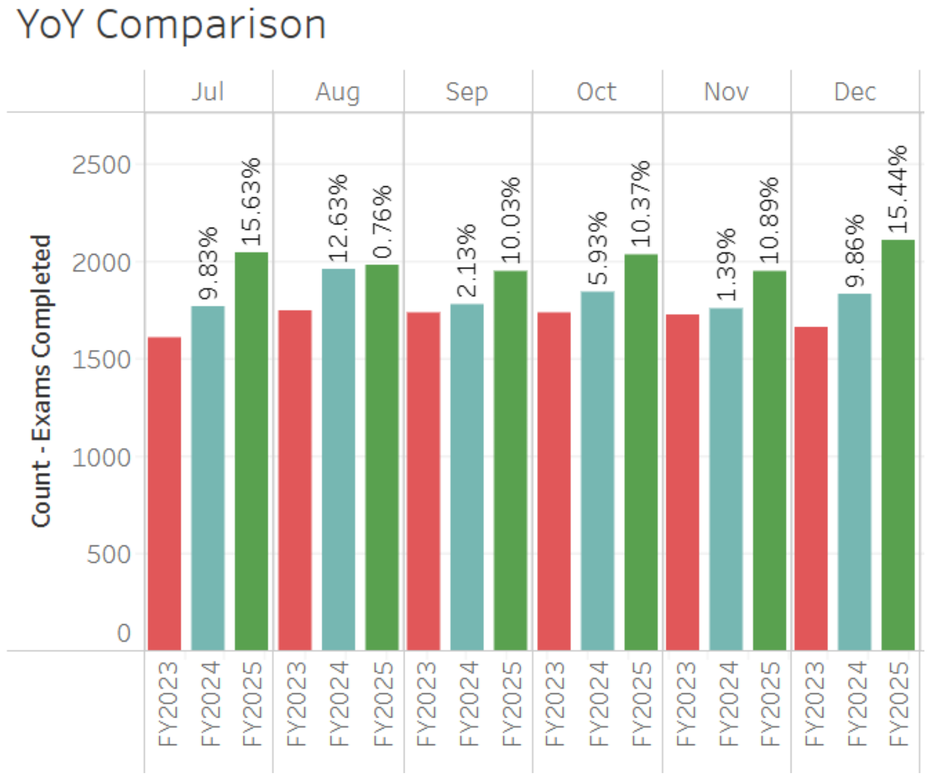
MRI Volumes-Enterprise Wide





MRI Volumes- UH/James





Objective:
Identifying Essential Adjustments

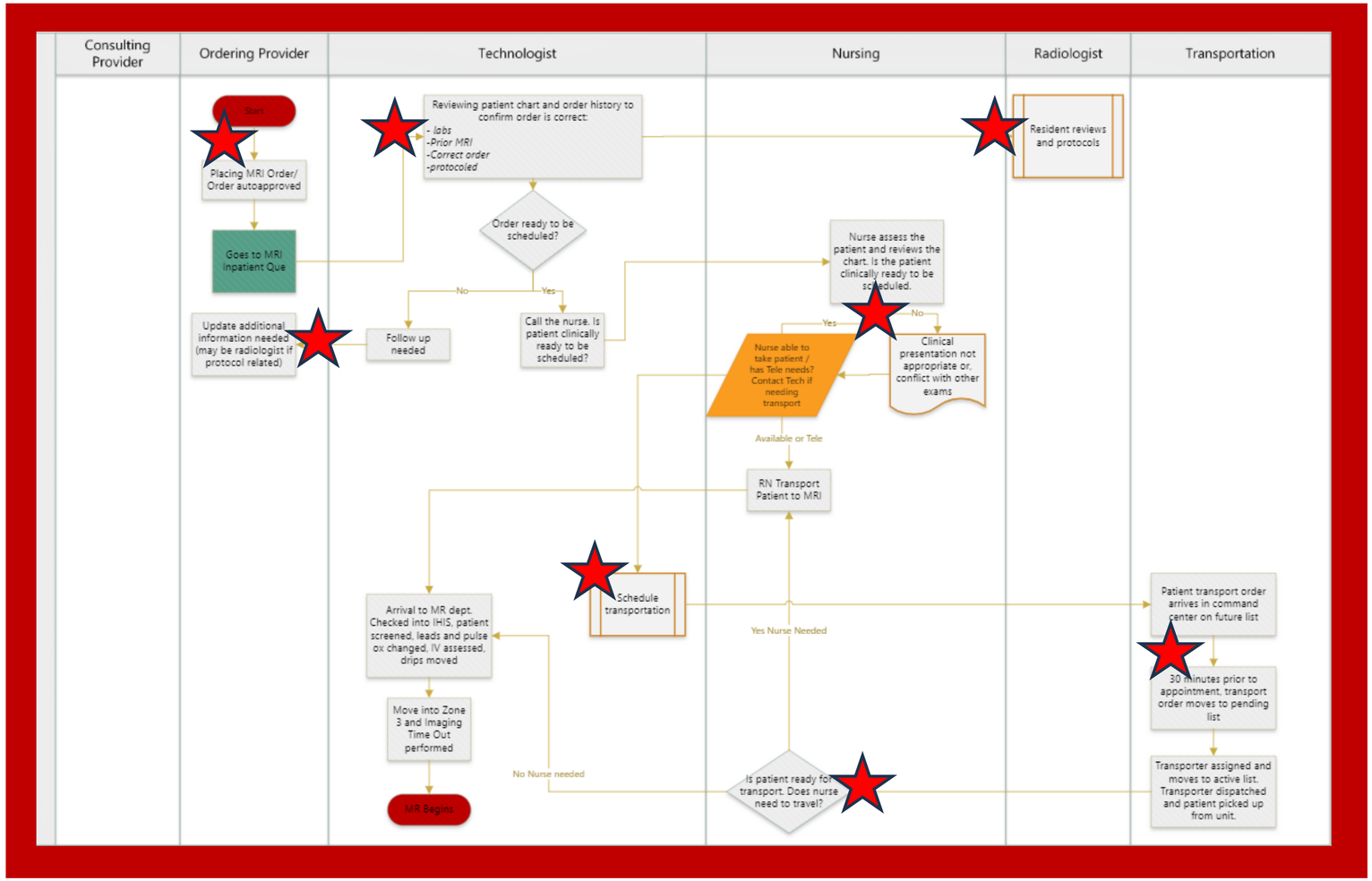
Process Map Identifies Opportunities

"A problem well defined is a problem half solved"

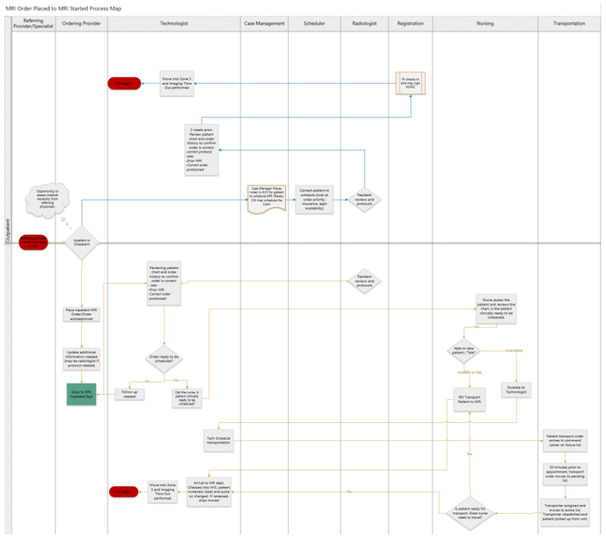
-Charles Kettering

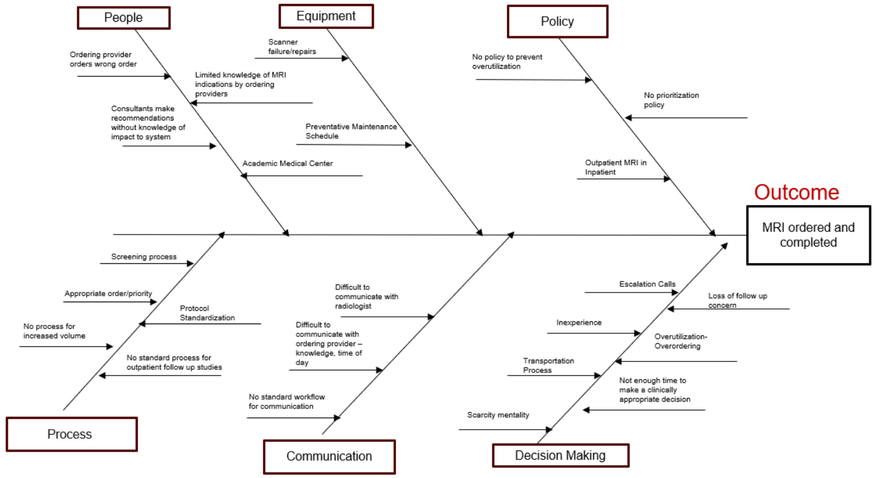
Opportunities in all interdisciplinary teams

- Ordering provider
- Radiologist
- Technologist
- Nursing
- Transportation
- Anesthesiology
- Cardiac Clinics



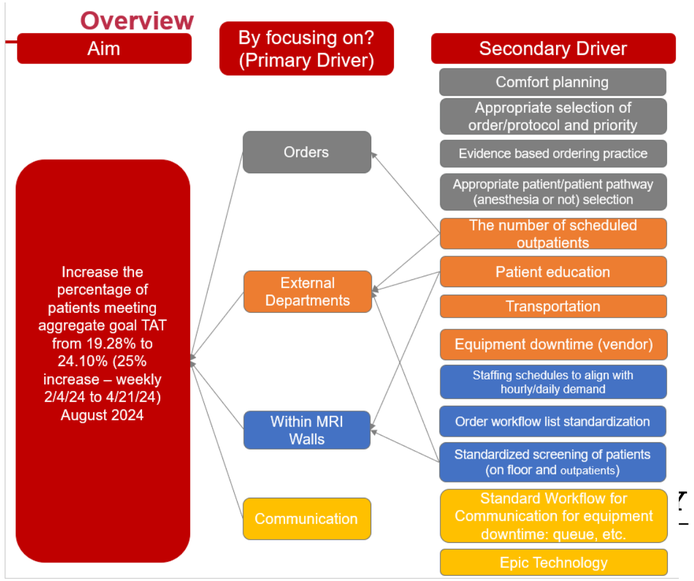
Define, Measure, Analyze, Improve, and Control (DMAIC)





Suppliers (Sources)	Inputs *measurable*	Process Steps	Outputs *measurable*	Customers
Patient, EMR, Consultants, MRI department	Patient care information, consultant recommendation, knowledge of MRI TAT	**Provider Orders MRI with acuity**	MRI ordered (hits que)	Patient, Radiologists Rad Techs
EMR, RN, Provider	Patient information, order, Procedure notes, Patient history	**Technologist Reviews Case**	More questions for nurse, provider, case deemed ready to protocol/schedule	Patient, Provider, RN, Radiologist, Rad Tech Team
EMR	Radiologist, patient information, order	**MRI is Protocoled**	MRI protocol	Patient, Provider, RN, Rad Tech Team
EMR, Unit Environment, Patient	Patient information, RN workflow, Patient schedule	**Nurse Review**	Information regarding if patient is able to go down to MRI and whom should accompany the patient	Patient, Provider, Rad Tech Team, Radiologist
EHR	Order, MRI schedule, urgency of order	**MRI is Scheduled by Technologist**	Time of test	Patient, Provider, RN, Rad Tech Team, Radiologist
Bed, Wheelchair, Transportation Department	Order from RN/Technologist, Patient, Study time	**Patient Transport to MRI**	Patient arrives at MRI department	Patient, Provider, RN, Rad Tech Team
Patient, EHR, Medical Equipment	Patient history from patient and EHR, drips, vitals	**Check-in, Screening**	Patient ready for move to zone 3	Patient, Provider, Radiologist
Bed, Wheelchair, MRI department	Patient, Checklist, Radiation Technologist	**Move to zone 3 Time Out**	Patient ready for MR	Patient, Provider, Radiologist
Patient, MR table, MR	Patient, Protocol, Radiation Tech	**MR Begin**	MRI images	Patient, Provider, Radiologist

High Impact/Easy to Do	High Impact/Difficult to Do
• Preventative Maintenance Schedule • Outpatient MRI in Inpatient • No standard workflow for communication • Screening process • Physician Approved Cancellation Algorithm • Transportation	• Ordering provider orders wrong order • Limited knowledge of MRI indications by ordering providers • Consultants make recommendations without knowledge of impact to system • Scanner failure/repairs • No policy to prevent overutilization • No prioritization policy • Equipment Downtime
Low Impact/Easy to Do (Low-Hanging Fruit)	**Low Impact/Difficult to Do**
• Escalation Calls • Difficult to communicate with radiologist	

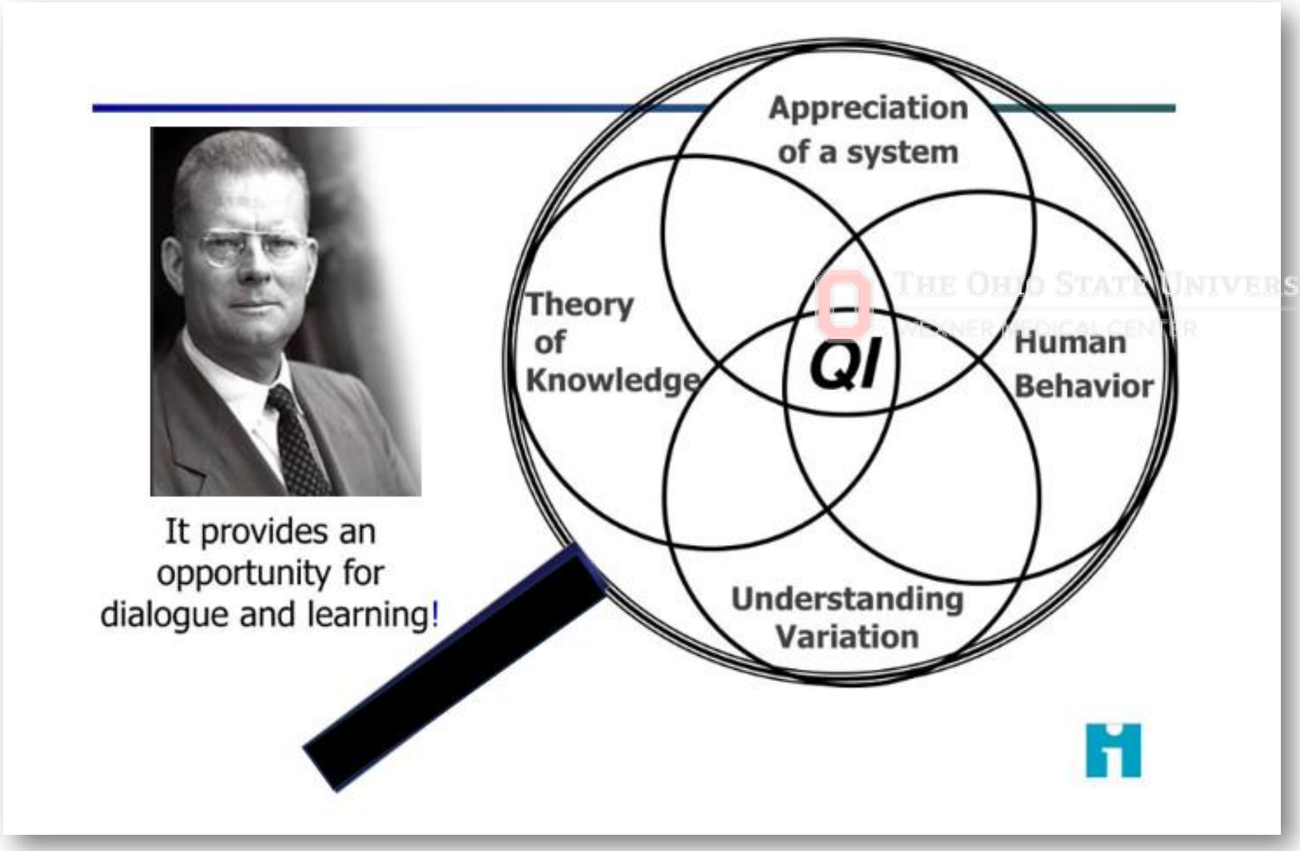


Key Identified Attributing Factors

- Transportation delays
- Staffing constraints
- Team engagement/ buy-in
- Increased MRI volume
- Escalation algorithm not standardized
- Interdisciplinary relationships
- Schedule Template
- Screening/ Prescreening delays
- Appropriate Resources

Strategy:
How we executed change to improve

Edwards Deming - Lens of Profound Knowledge



[The Science of Improvement on a Whiteboard! | IHI - Institute for Healthcare Improvement]

A framework for how to think about Quality Improvement

Our strategy guide for implementing change

- Assess the culture of the department
- Ensure the team has the right resources
- Strengthen the interdisciplinary partnerships
- Establish baseline performance
- Swiftly implementing the quick wins
- Optimize Technology
- Provide follow up and maintain team engagement

Assess the Culture of the Department

- What purpose does the team have?
  - What processes are in place to support the team?
  - How do the people impact the culture?
- Identify hidden leaders and leverage their network
- Engage the team for their feedback and buy-in
- Provide structure and accountability

"Seek first to understand, then to be understood"

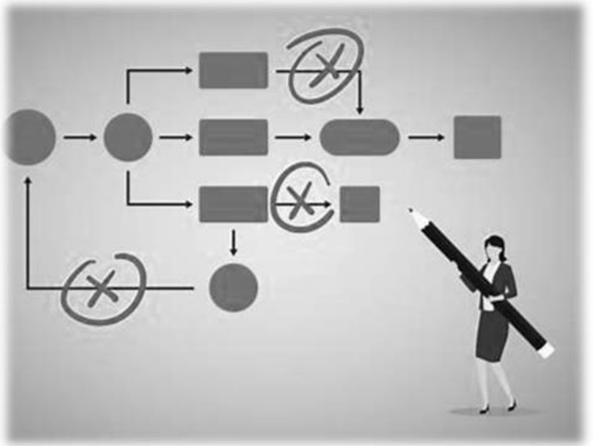
-

Stephen Covey

Ensure the team has the right resources

"We do not want to do more with less, we want to do better with the right resources"

- What process is in place that does not support the teams?
- Does the team and department have the right tools?
- What ideas or barriers does the team identify?
- Can technology be utilized to support the teams?



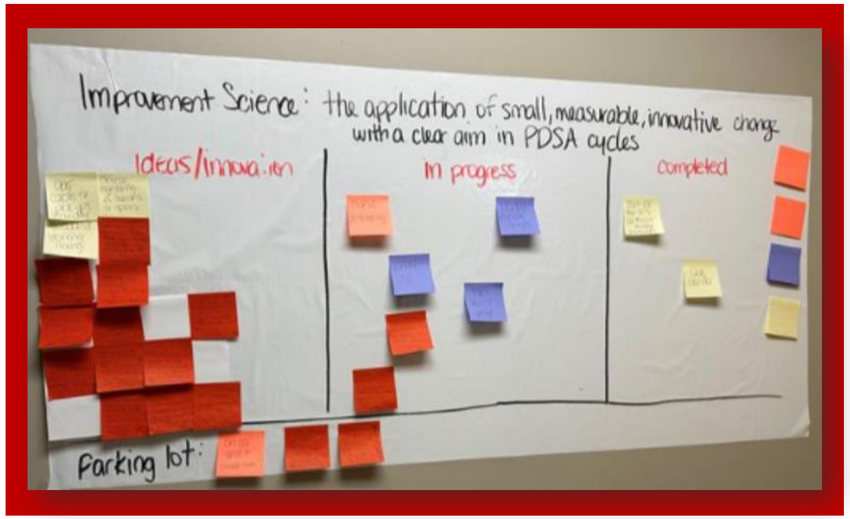
Providing the Resources

- Implementation of a standardized triage algorithm
  - Prioritize care for the STAT/ER orders
  - Care for patients from oldest to newest when appropriate

- Partnering with our radiologists
  - Escalation of life-threat scans
  - Education to Residents regarding MRI clearance films

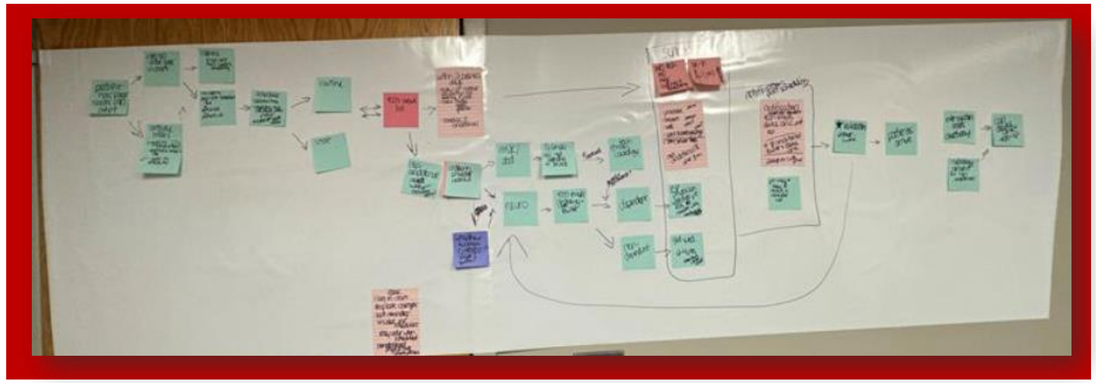
- Staffing needs identified
  - PCAs
  - Nursing
  - Implant Specialist
  - Students

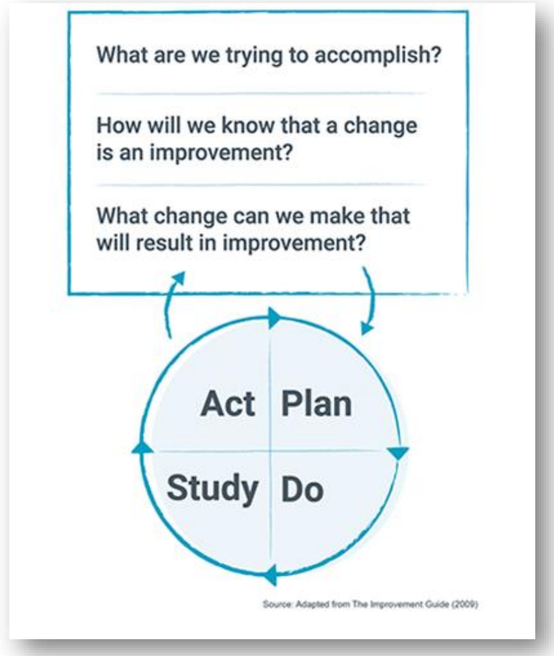
- Pyxis purchased



Establish Baseline Performance

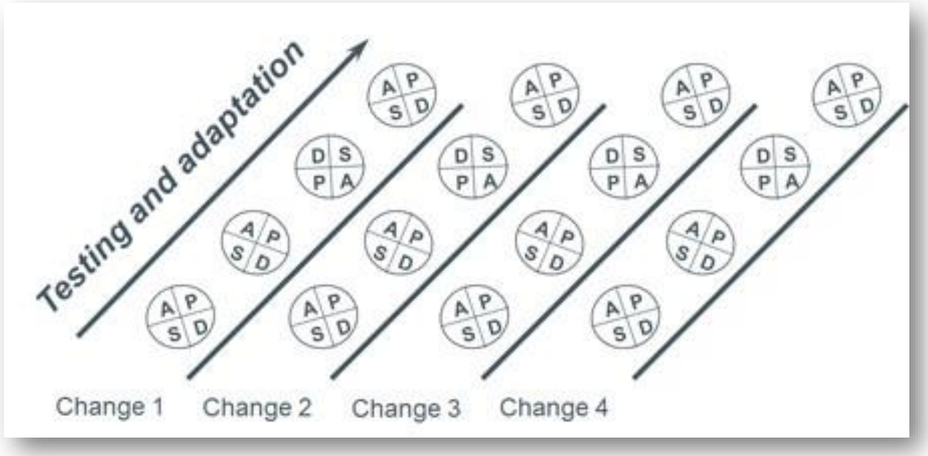
- What is the current department landscape?
- How did we get where we are?
- Involve the team in mapping the current performance





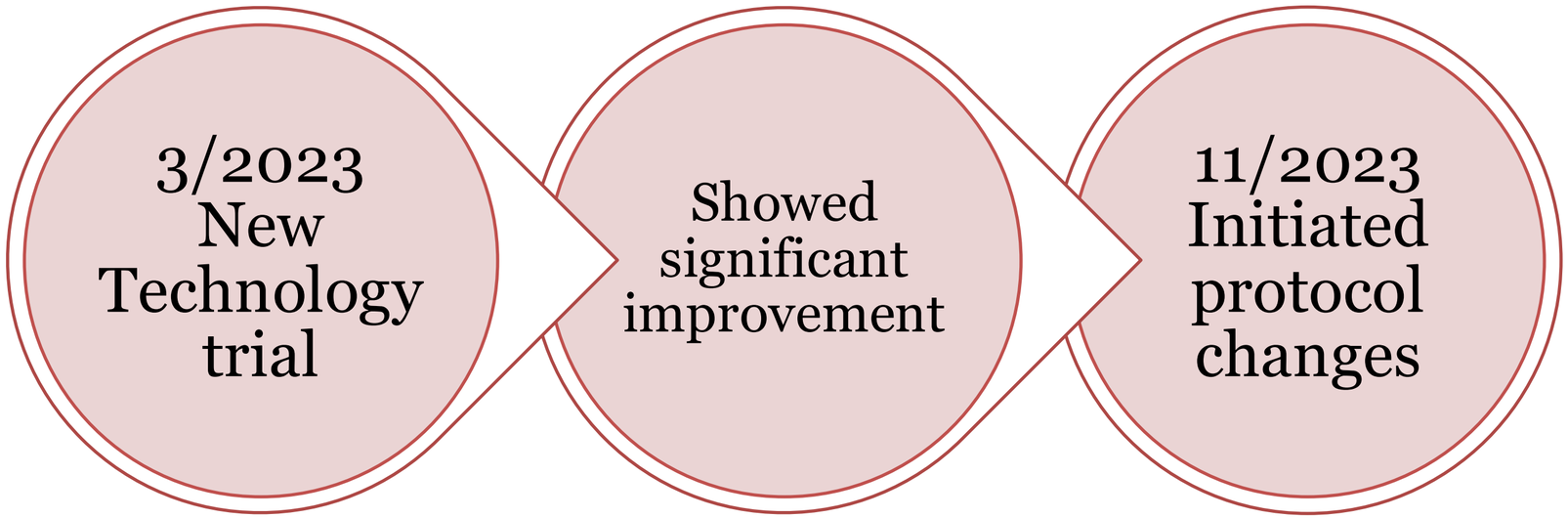
Swiftly implementing the quick wins

- Short term wins provide proof that the change initiatives are making progress”
- This ensures you tackle the “low hanging fruit” items that will make a high impact
- Creates buy in and motivation
- Inspires forward movement

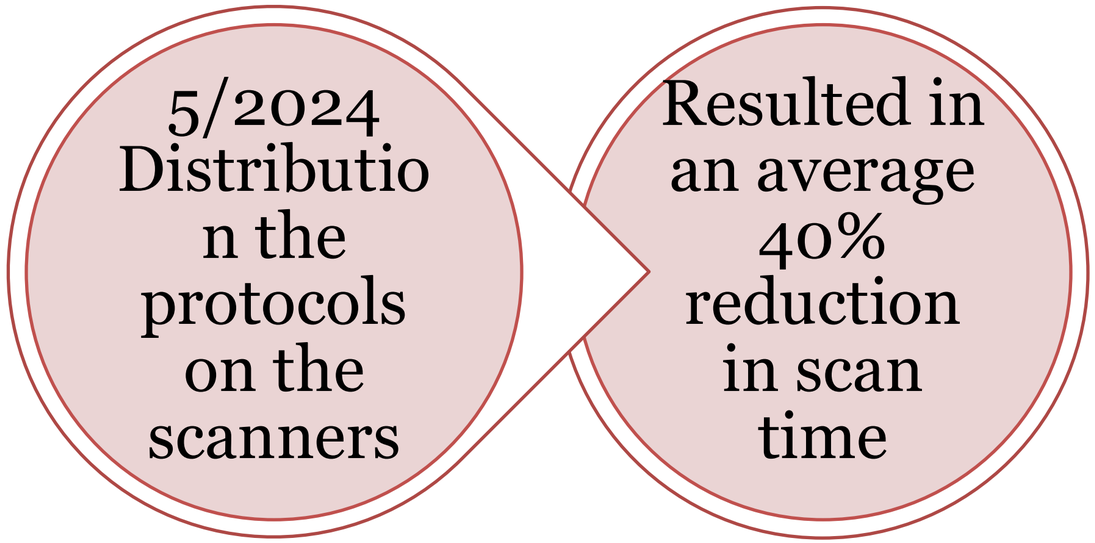


Technology Optimization

AI powered technology available that accelerates MRI sequences



Technology Optimization



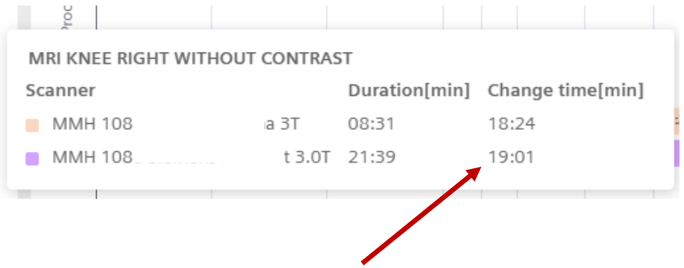
Technology Optimization

Non-DR protocol time

DR knee protocol time

Real Data from one of our scanners

- Over the last 6 months we show the average duration is 8.31. The other scanner cannot be optimized with the AI technology and shows 21.39 minutes per knee.



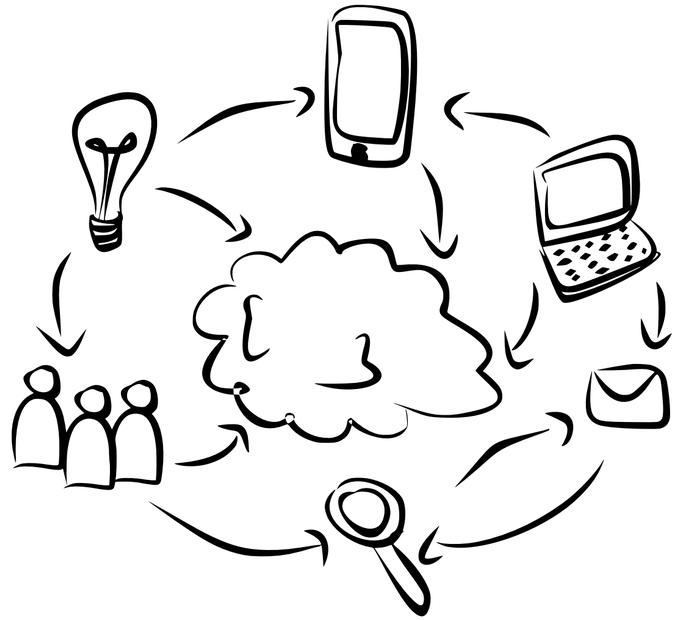
Strengthen the Interdisciplinary Partnerships

- Assess the stakeholders
  - Who influences the team's success?
- Strengthen interdepartmental communication
  - Start with introductions and purpose
- Engage high-impact teams
  - Leverage the connections and influence
- Involve the teams in the project
  - Create a platform for shared decision making

Provide follow up and maintain team engagement

- Establish a mechanism for communication/feedback
  - Validate efforts
  - Recognize involved staff
  - Reinforce and encourage the teams
  - Address resistors
  - Provide accountability

- Strengthen interdepartmental relationships
  - Partner with other teams who have ideas for improvement

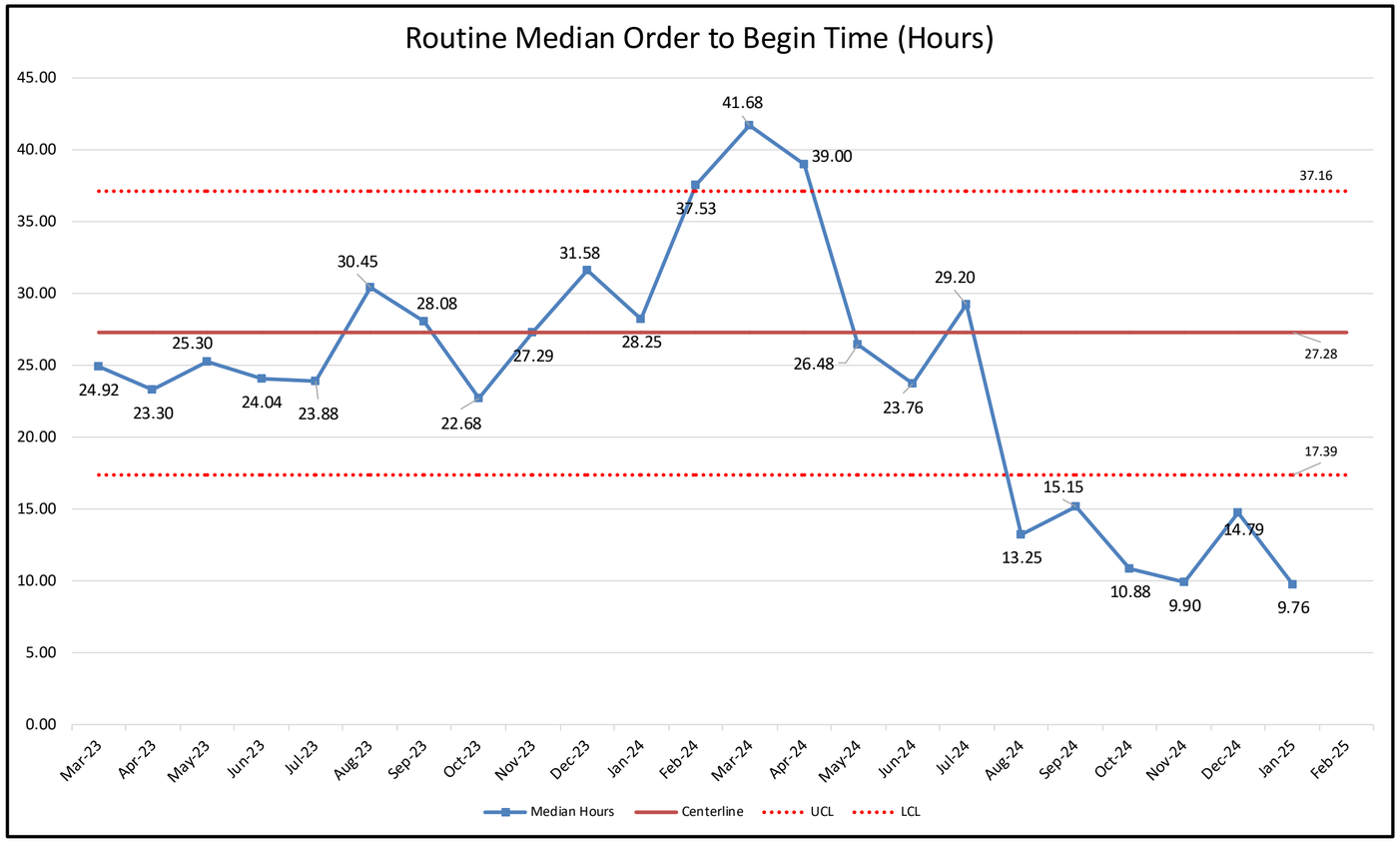


Team Engagement Efforts

Visual Management board
Daily huddles
Manager and lead follow up
Peer to peer accountability and engagement
Engagement of the teams for buy in prior to changes
Celebrating successes
Displaying the metrics at staff meetings
Documentation of que 2x daily

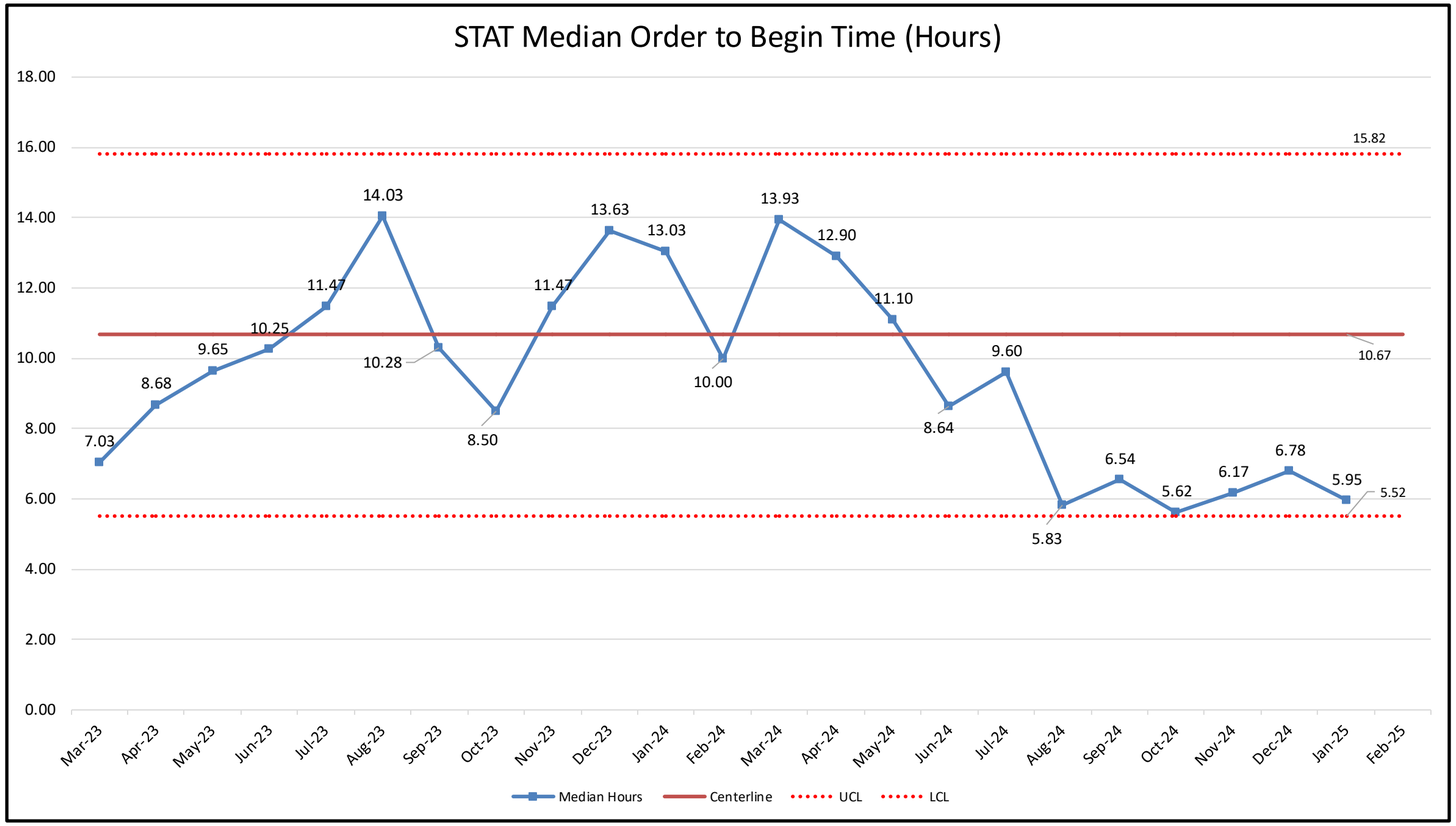
Outcomes:
Evaluation of Our Current Progress

Routine Turnaround Times



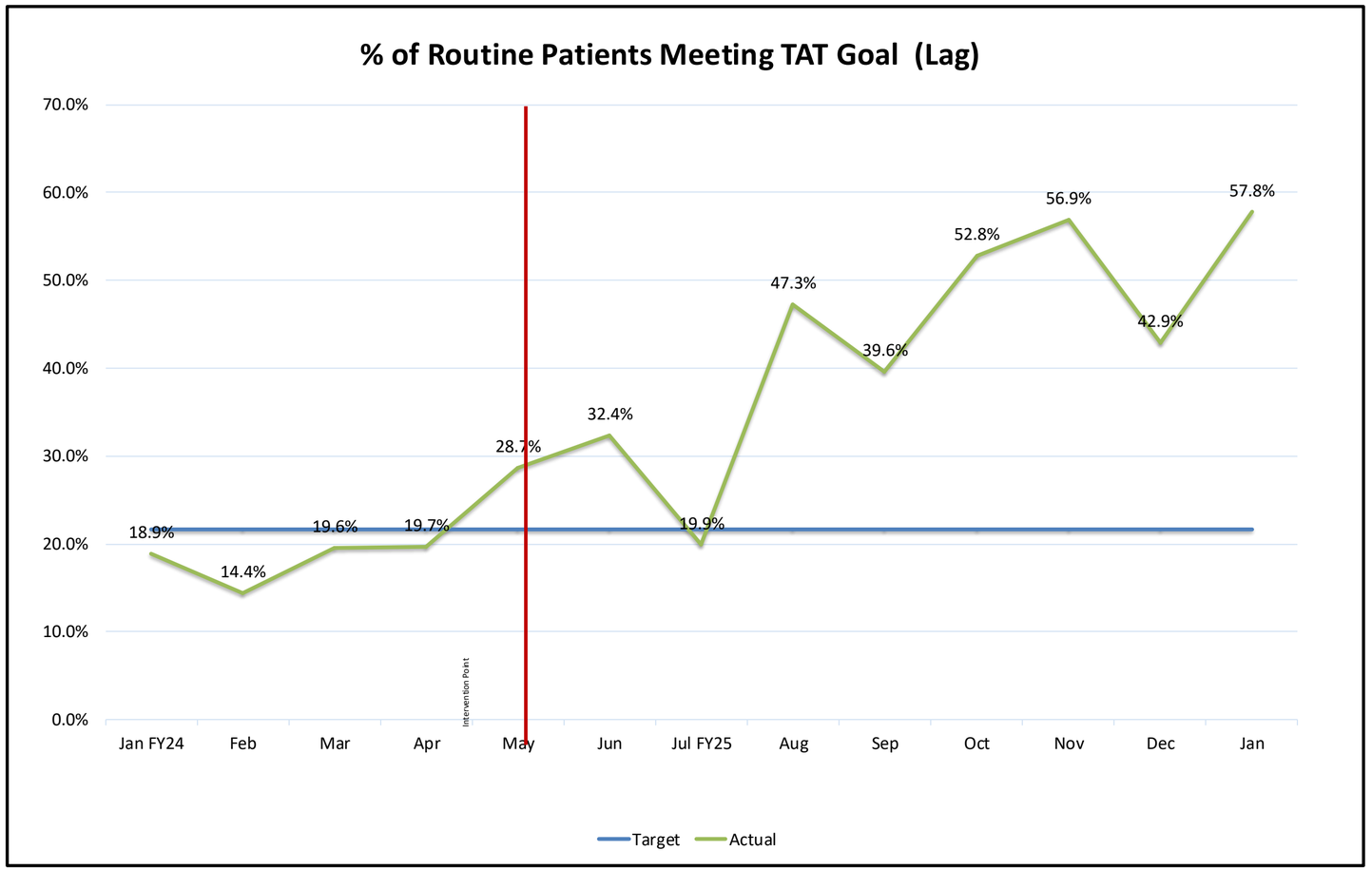
- 6 data points below the centerline

Stat Turnaround Times



- 8 data points below the centerline
  - We can confirm a shift

Turnaround Time Goal

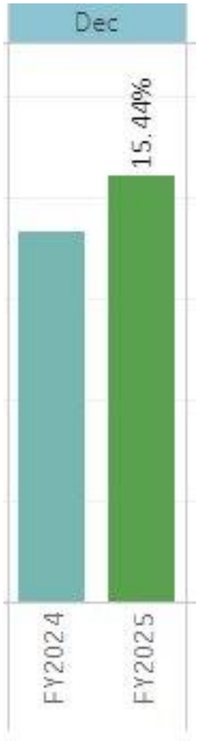


- Since January 2024
  - 8 months above our goal

Volume Increase

- Patient technical volume increase of 282 exams
  - (15%) increased from Dec 2024 vs Dec 2025

- Maintained our current volume while improving TAT



Insight:
Reflections and Takeaway

Be the Best at Getting Better

-D. Delisle

Lessons Learned

- Not everyone would see the changes as positive
- Engage the nay-sayers
- PDSA cycle importance
- Evidence should drive changes
- Stay in the PRAISE

Lessons Learned

- Always engage the team for buy-in before optimization
- Ensure you have the right team members involved in the project work
- Transparent communication is key
- Recognizing success and acknowledging outcomes
- ~~Failure~~ is part of the Path to success
- Patience and Persistence are Key

"Changes happens WITH and THROUGH people, not AT and TO them"

"First who, then what."

Key Reminders Along Our 2 year Journey

- Continuous improvement is a journey, not a destination
- Data-driven decisions lead to better outcomes
- Engagement from all levels is crucial
- Change management is as important as process improvement
- Focus on sustainable results
- Measuring the right metrics matters

Our MRI Improvement Journey Continues

- Our efforts will be dedicated to the continuous improvement of our department

- Our path to continued success will come from a different direction
  - Ordering provider ownership
  - Nursing engagement
  - Anesthesiology partnership

"First who, then what"

Future Plans

Establish a demonstratable business case for quality

Enhance inpatient staffing model to support expanded hours of operation

Create in-house held time slots for specific outpatient scans

Implement Nursing Pre-screening

Thank you for allowing us the opportunity to share improvement efforts!

Questions?

For additional follow up, please contact Lauren or Annette:

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We value your feedback!

Please scan the QR code to submit a survey for this session.