

# IMPROVING THE EFFICIENCY OF THE FETAL MRI SERVICE AT AN OUTPATIENT CLINIC

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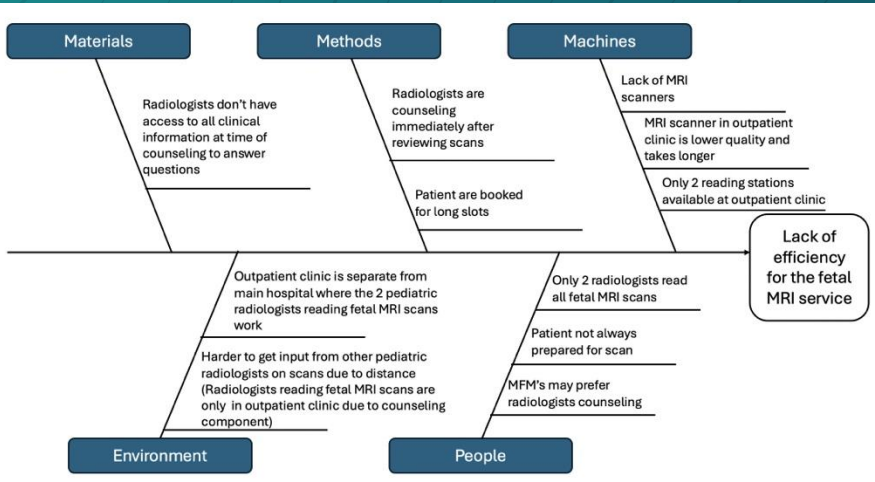
## BACKGROUND AND PROBLEM

- Fetal MRI is a crucial tool used to characterize an abnormality detected on prenatal ultrasound, and the results can be difficult for patients to receive.
- At our institution, radiologists provide an immediate face-to-face counseling session with patients to review MRI results, so it is a significant aberration from the typical radiology workflow.
- With increasing volumes, radiologists are rushed to evaluate images and discuss results which can negatively affect quality of care.
- Issues with patient-centered care can arise since radiologists may not have all available clinical information to discuss complex cases.

## PROJECT AIM

**The aim of this project is to improve the workflow of pediatric radiologists performing fetal MRI scans without compromising patient satisfaction, by decreasing the time spent per patient on all patient-related activities by 25% on a fetal MRI workday in 3 months.**

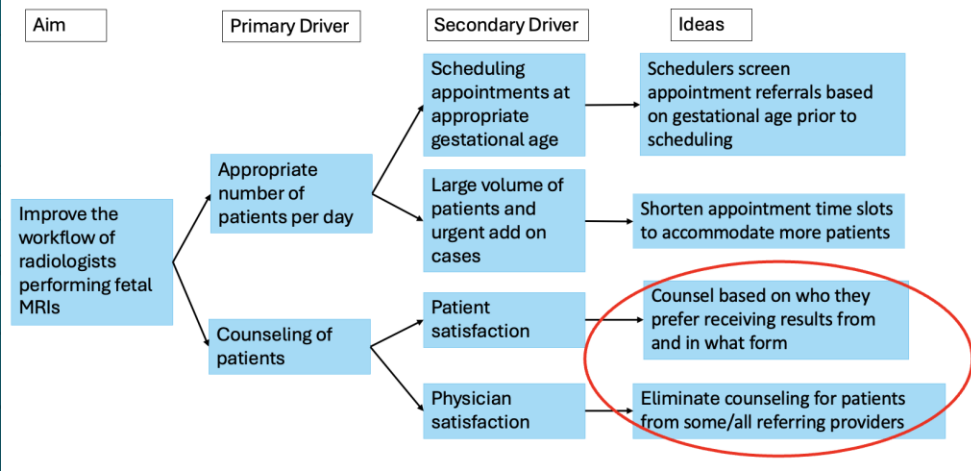
# CHANGE IDEAS



Fishbone Diagram showing the factors contributing to the inefficiency of the fetal MRI service including:

1. Counseling by radiologists and lack of proper information to counsel
2. Long appointment times
3. Lack of higher quality MRI scanners
4. Lack of radiologists

Driver Diagram highlighting the change ideas focused on during this intervention to target patient and physician satisfaction while improving the workflow.



# METHODS: PRE-INTERVENTION 12 weeks, 11/29/23-02/28/24

1. Started a Time Log to keep track of how long each patient activity is taking :

- Protocolling scans and reviewing paperwork
- Reviewing/interpreting images
- Counseling patients on scan results
- Dictating patient reports and logging cases
- Discussing results with the MFM

2. Created a Survey to give to patients to gauge their preference for receiving scan results

**Regarding the fetal or placental MRI scan you receive today, please rank from which of your doctors you would most prefer receiving your results from? (1 being most preferred, 3 being least preferred):**

- Maternal Fetal Medicine Specialist (MFM)
- Ob-Gyn
- Radiologist (Imaging Doctor)

*A portion of the survey given to patients.*

## MEASURES

### Process Measure

- Average number of minutes spent by the radiologist per patient per day  
$$= \frac{\text{total number of minutes spent on patient related activities}}{\text{number of patients}}$$

### Outcome Measure

- Turnaround time (TAT) for patient reports by the radiologist
  - Time MRI exam images are finalized to the time the radiologist signs the patient report

### Balancing Measure

- Patient preference on which provider they would like to receive results from

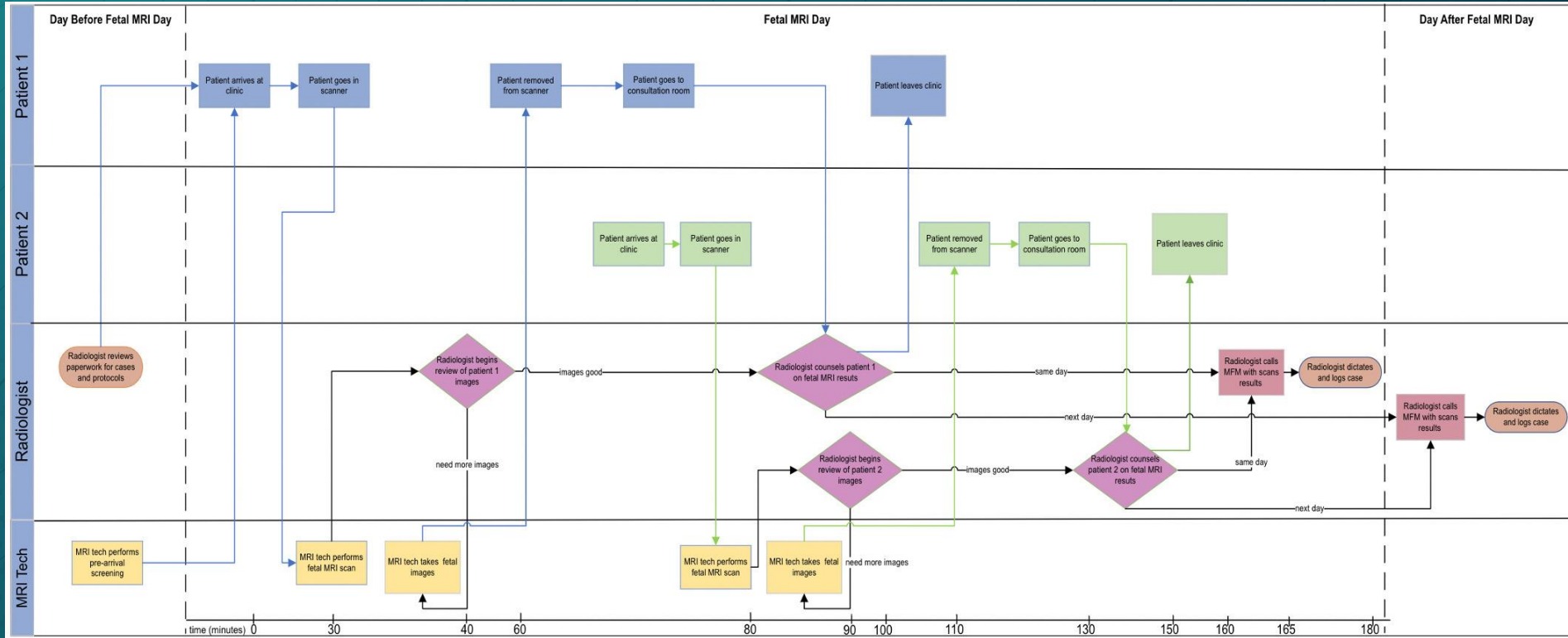
## PDSA 1 - 3/6/24 - 3/27/24

- Administered patient survey to understand patient preferences on receiving results
- Informed and received input from referring maternal fetal medicine (MFM) providers on the plan to eliminate radiologist counseling of patients
- Partial elimination of patient counseling referred by this group of providers**

## PDSA 2 - 4/3/24 - 4/24/24

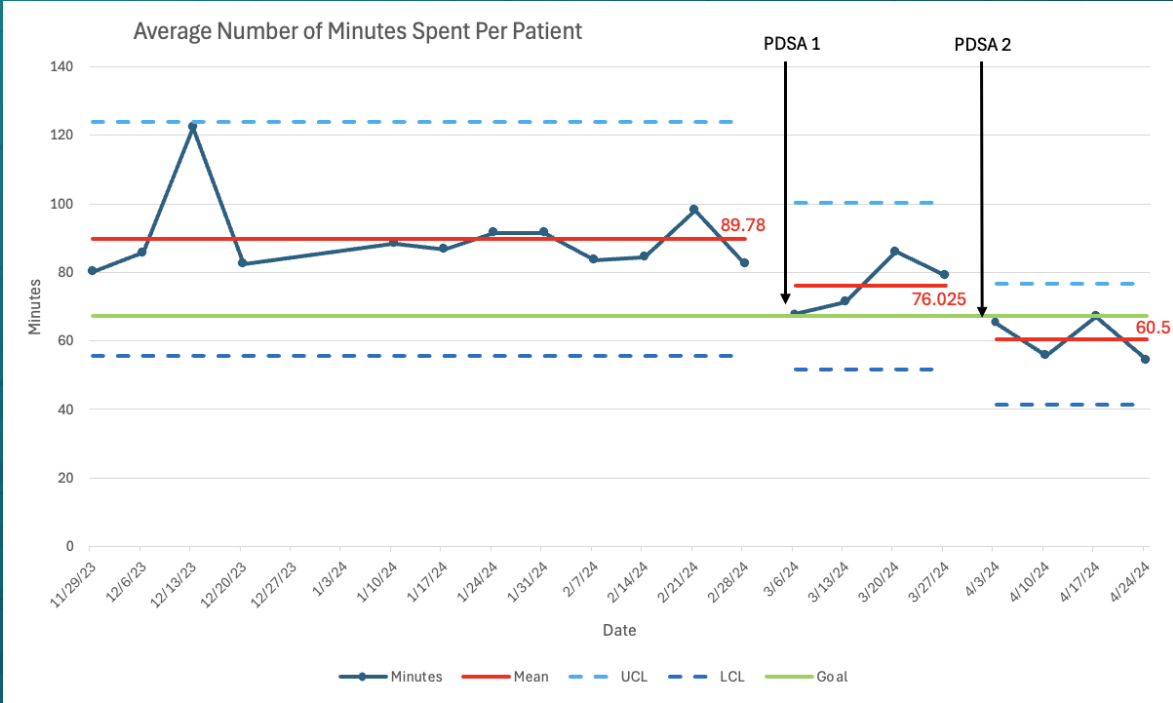
- Improvements in efficiency with time saved by eliminating counseling in PDSA 1
- Survey results indicate patients prefer to receive results from MFM
- Full elimination of counseling**
- Continued administering patient survey

# PROCESS MAP



Process Map showing the non-linearity and time-consuming factors in the Fetal MRI Service.

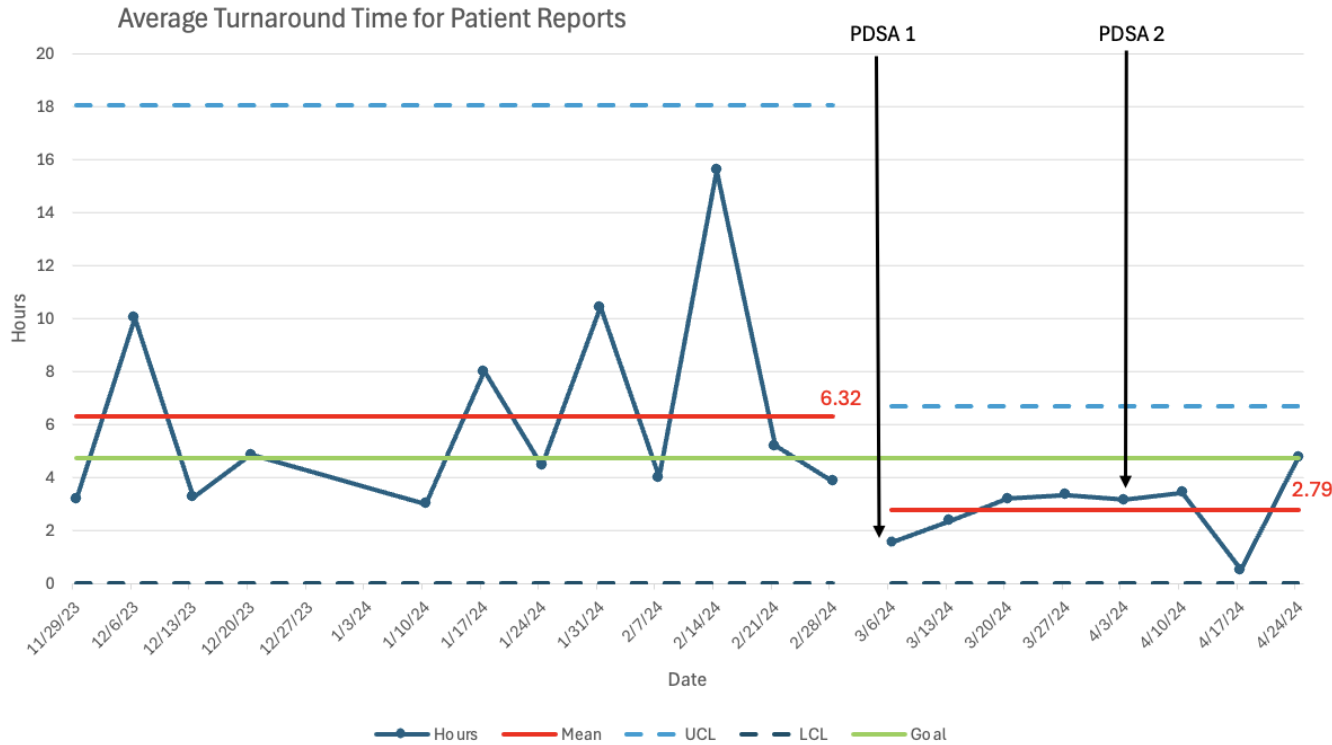
# STATISTICAL PROCESS CONTROL CHART (SPC) RESULTS FOR TIME SPENT PER PATIENT



Average Minutes:  
Pre-intervention- 90 minutes  
PDSA 1- 76 minutes  
PDSA 2- 60.5 minutes

SPC analysis revealed that the average time spent per patient decreased from 89.8 to 60.5 minutes after 2 PDSA cycles. This was a 32% reduction in time spent which exceeded the goal of 25%.

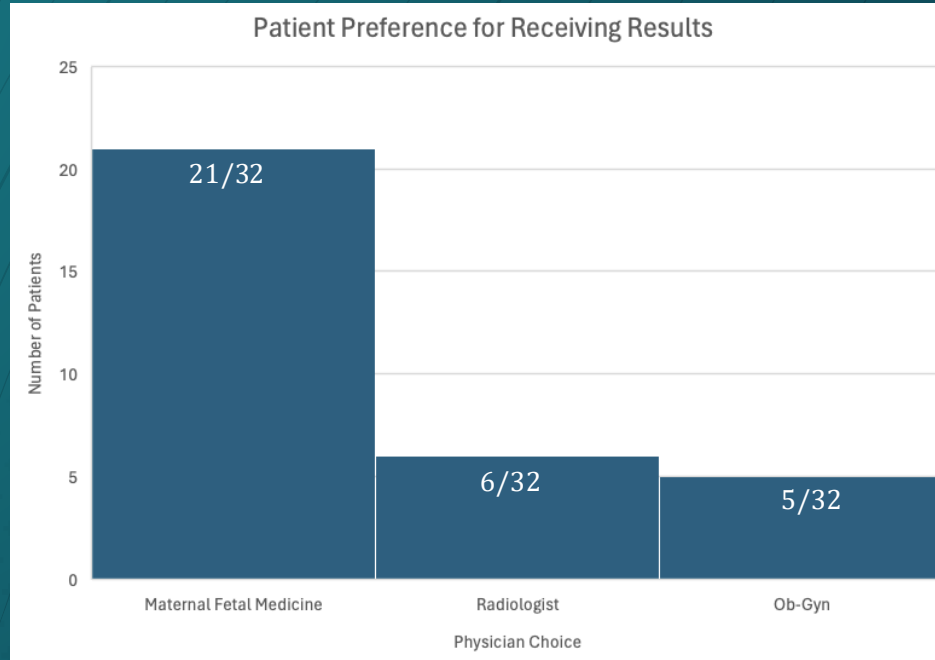
# STATISTICAL PROCESS CONTROL CHART RESULTS FOR TURNAROUND TIME



Turnaround time (TAT) for patient reports decreased from 6.32 hours to 2.79 hours after the elimination of counseling and 2 PDSA cycles. This 55% reduction in TAT exceeded the goal of 25%.



# PATIENT SURVEY RESULTS



Patient survey results revealed that 26/32 (81.3%) of patients prefer hearing scan results from their MFM or Ob/Gyn over the radiologist. The decision to eliminate counseling by the radiologist was supported by patients.

# DISCUSSION

Removing radiologist-led counseling effectively met project goals, improving efficiency by 32% without compromising quality. Radiologists had more time for scan reviews, reducing report turnaround times by 55%. An unanticipated result is that the fetal MRI service moved to a better facility as the Outpatient Clinic was no longer needed for post-scan patient counseling. Other unanticipated results included:

- access to a higher quality 1.5T MRI scanner for improved scans
- increased availability of workstations allowing for more radiologists to read fetal MRI scans together -> improvement in efficiency and quality of work

# CONCLUSION

The removal of counseling in the fetal MRI service improved radiologist efficiency by 32%, measured by time spent per patient, and report turnaround times by 55%. Patient preferences were incorporated by scan results being communicated by their most preferred provider. Overall, significant improvements in both workflow and patient care that exceeded the initial aim were achieved through the intervention.