

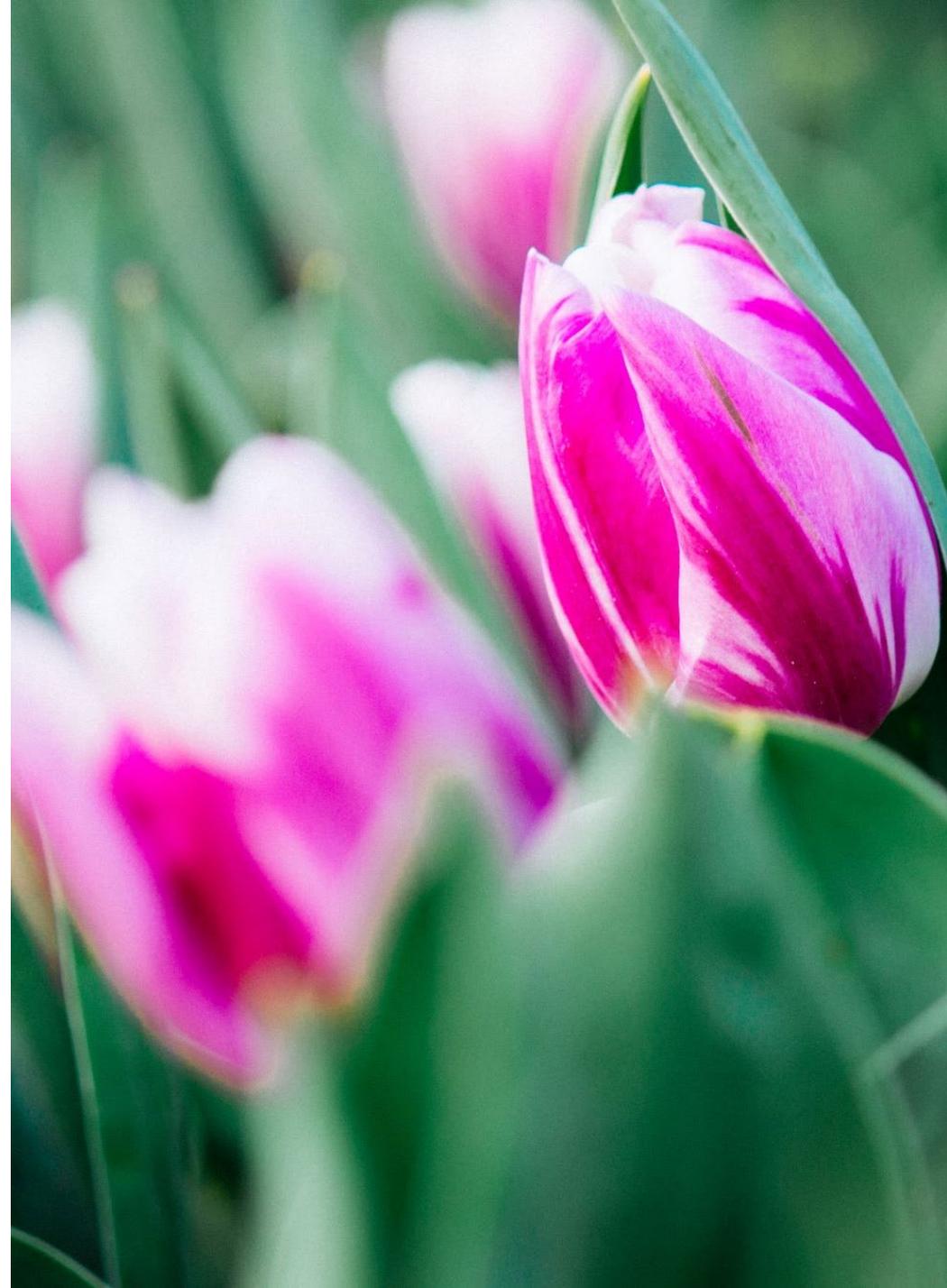


TULIP: THE ULTRASOUND LABELING IMPROVEMENT PROJECT

US QI PROJECT

Nirvikar Dahiya MD, Charles Utecht RDMS, Roger Ellstrom RDMS, Cathy Hannafin, MBA/HCM, RN, CPHQ, Lisa Ponce, RT(R), Dyan DeYoung, RT(R)

Mayo Clinic Arizona



PROJECT OVERVIEW

- **Project Started:** Dec 2020
- **Location:** MCH Radiology
Ultrasound Procedures
- **Gap in Quality:** Increase in specimen-related errors over past six months.
- Lean Six Sigma/**DMAIC** approach
- QA Gold Project submission goal
- Weekly Zoom meetings, 1 hr
- SharePoint site for team
- **Provider Champion:** Dr. Nirvi Dahiya, Division Chair
- **Team Leader:** Chuck Utecht, US Supervisor
- **Operations:** Dyan DeYoung, US Ops Manager
- **Nursing Leader:** Tom Williams, Rad Nursing Manager
- **Quality Advisors:**
 - Cathy Hannafin, RN Quality Specialist
 - Lisa Ponce, Rad Quality Advisor
 - Dr. Jonathan Flug, Rad Quality Chair
- **Sonographers:** Stephanie Black, Nicole Coderre, Roger Ellstrom, Chauna Hardin, Tawny Hernandez, Alena Karlowicz, Kaylee Kellogg, Shayna Vedadi, Tracie Wickert
- **Radiology RNs:** Jenna Jemiola, Lindsay Marshall, Kathy Larson
- **Data Analysts/Informatics:** John McCabe

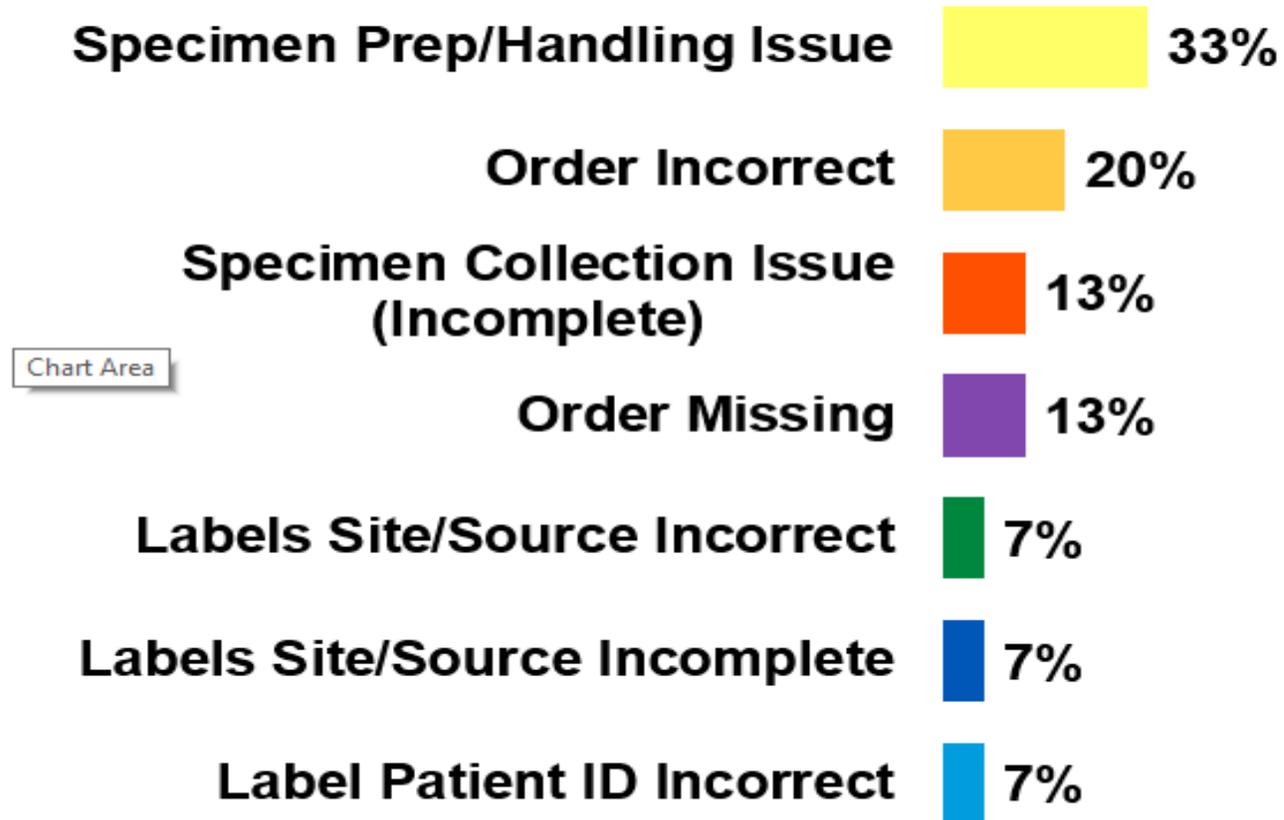
GAP IN QUALITY

An increase in the number of specimen-related safety events in the hospital at MCA.

Radiology Ultrasound Division was identified as the site for these events.

From June-November 2020, the specimen-related safety event rate was .37 events per 100 US procedures, compared to the prior 12 months (June 2019-May 2020) of .10 events per 100 US procedures.

The percent of specimen-related safety events by type from June 2020-Jan 2021 were reviewed by the team

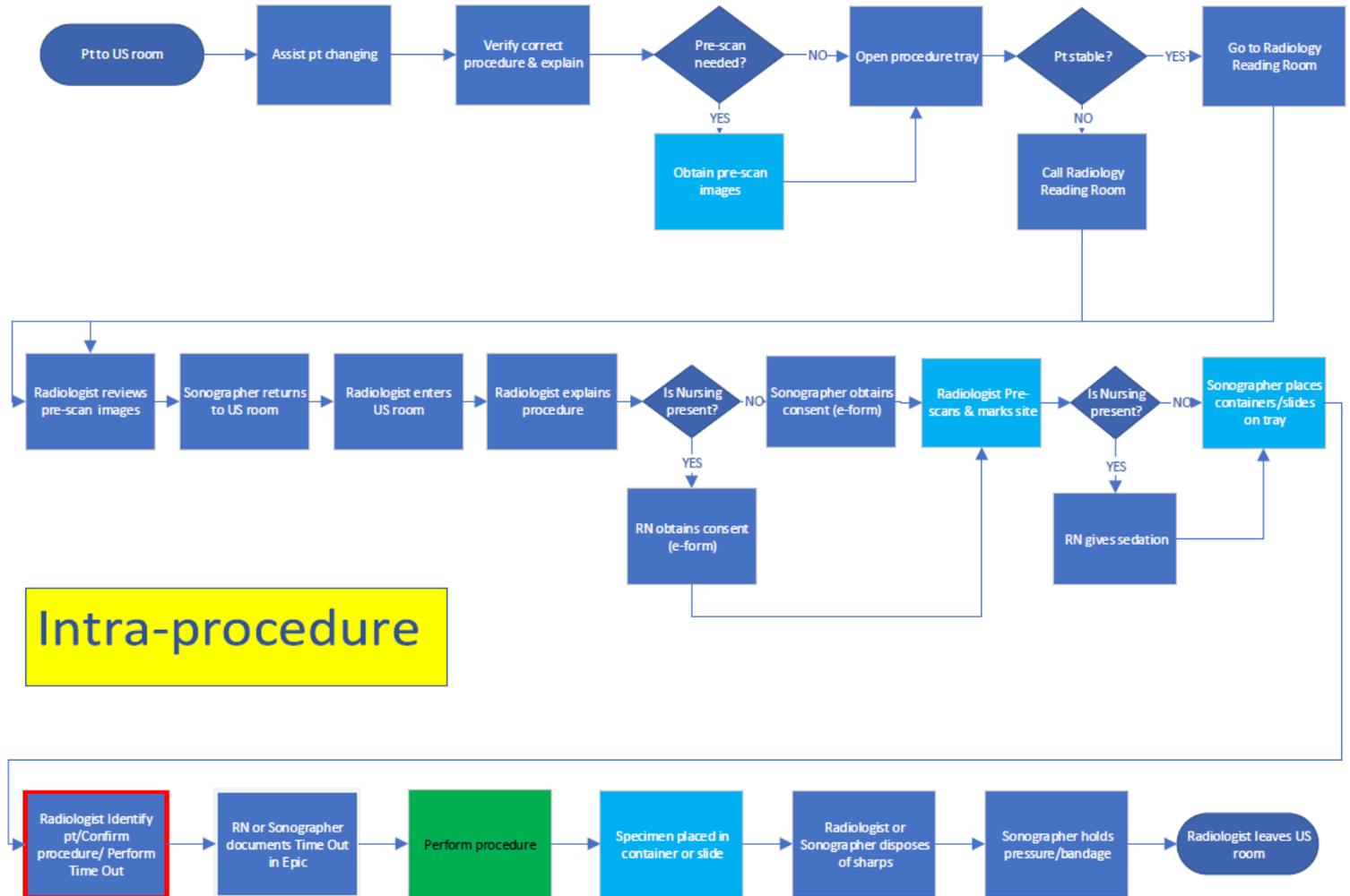


PROCESS MAP

MEASURE

- Created Pre/Intra/Post-procedure detailed process maps through observation and group collaboration

Patient in US Room to Radiologist Leaves US Room (Outpatient)



FAILURE MODES EFFECTS ANALYSIS (FMEA)

ANALYZE

Used FMEA tool to document failure events, the way in which a process can fail, estimating the risk associated with specific causes – **Risk Priority Number (RPN)**

Process Step	Success Criteria	Potential Failure Mode	Potential Effects of Failure	SEVERITY	Potential Cause(s)	OCCURRENCE	Current Process Controls	DETECTION	RPN
Description of the process step being analyzed.	If the process works properly what is the desired output?	Describe how the process could potentially fail. A given process step can have more than one failure mode.	From an internal or external customer point of view, what would be the effects of the failure mode?	How Severe is the effect to the patient?	Describe how the failure could occur. List every conceivable cause.	Estimate the frequency of the occurrence.	What are the existing controls and procedures (inspection and test) that either prevent failure mode from occurring or detect the failure should it occur?	How likely is it that you will detect the failure mode?	SEV x OCC x DET
Chart Review	Find out correct order and find out what is being diagnosed; prior imaging; labs ordered for correct medium	Provider entered wrong order; no provider note; wrong laterality; therapeuticvs diag.; information missed	Pt comes back for scan; labs not collected; wrong diagnosis	7	Many notes; not organized; no notes detailing why; encounter vs note; different provider; molecular testing?	10	Looking ahead the day before or right before; and call ordering Dr if avail.; Asking Radiologists to help clarify;	5	350

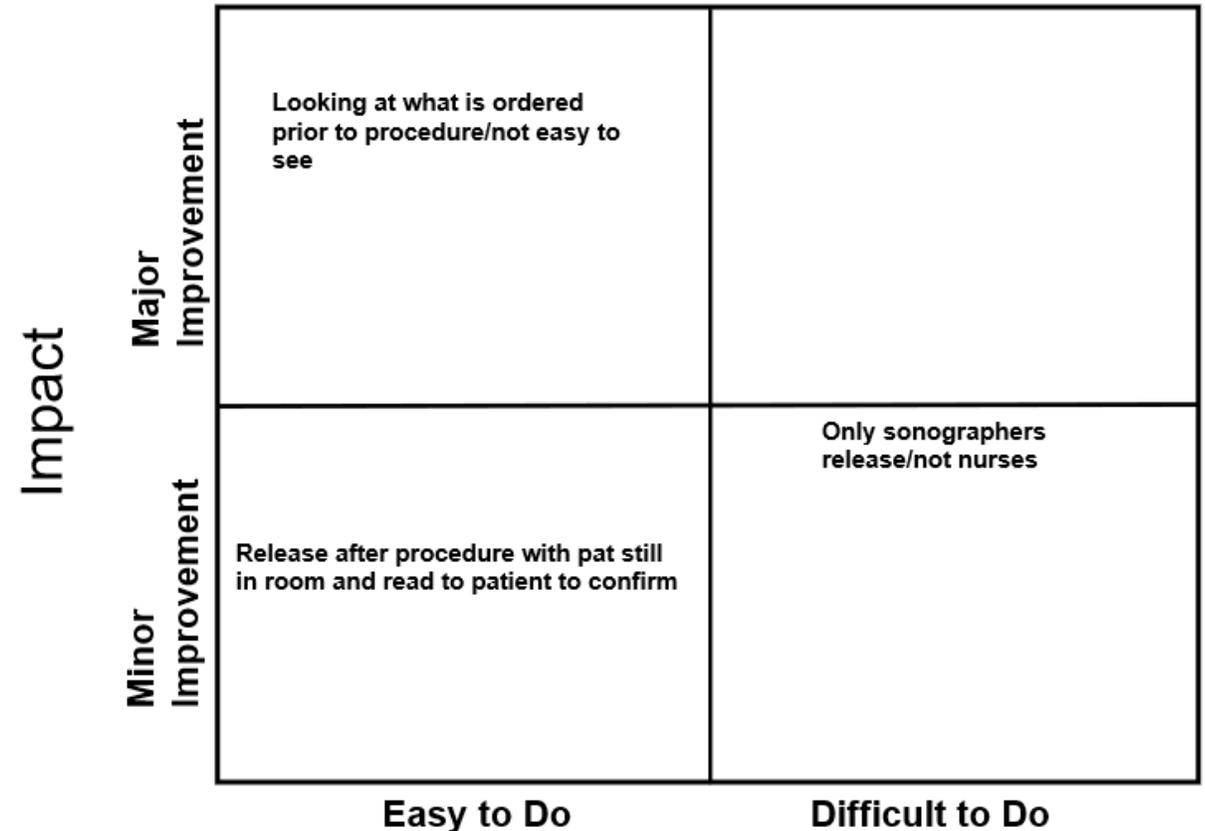
BRAINSTORM & IDENTIFY KEY IMPROVEMENT IDEAS

ANALYZE

Used **Impact/Effort Grid** to rank improvement ideas into high/low impact and high/low effort:

Impact/Effort Grid

Sonographer releases signed and held orders (post-procedure)

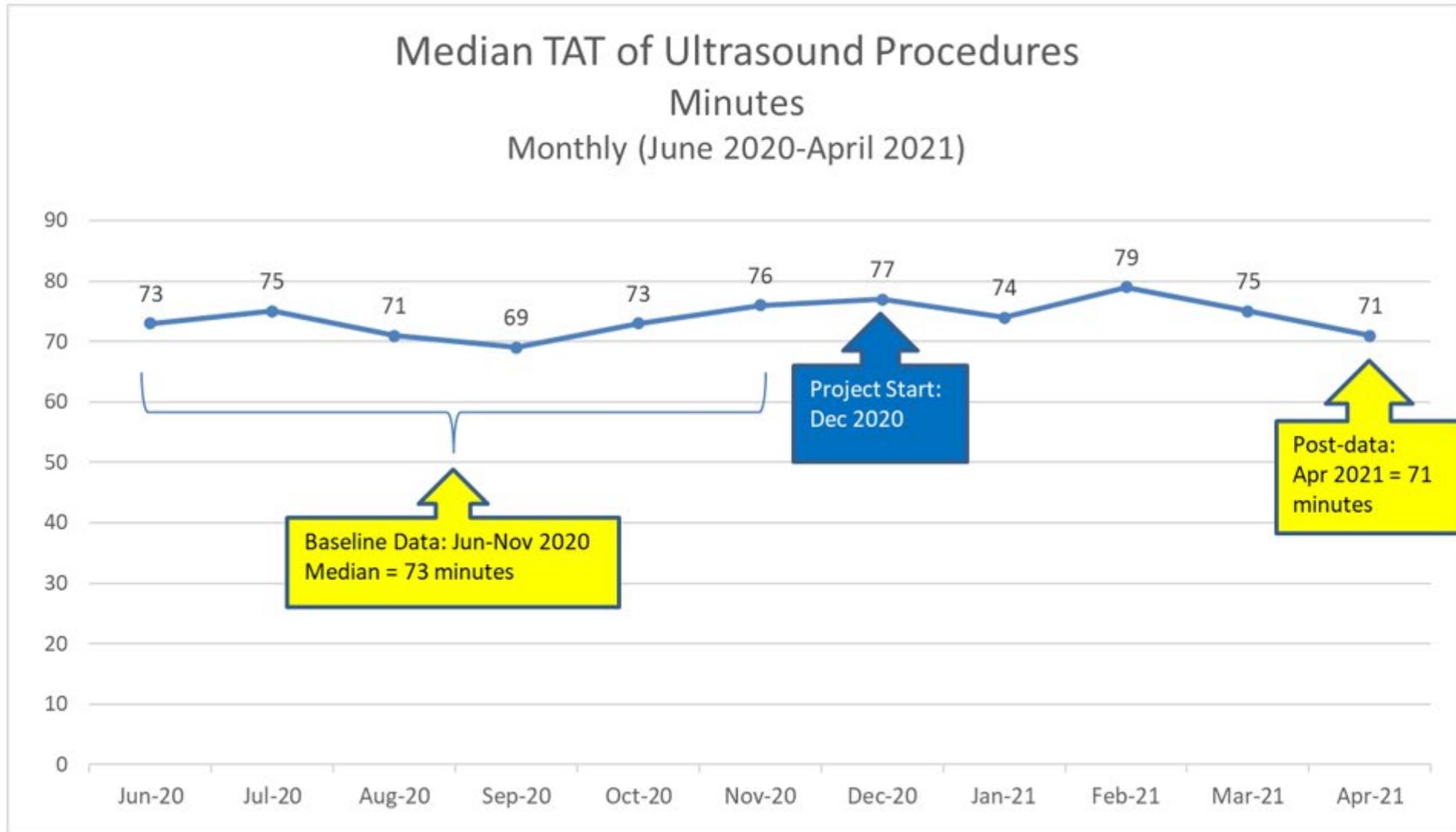


INTERVENTIONS ARE SELECTED AND TESTED

- **Specify/designate who leads the time out.** Sonographer will use Epic as the primary source to confirm patient, exam and specimen information with team. A QRG was created and 1:1 staff training was provided. The procedure room computers were relocated for easier viewing.
- **Ensure specimen orders and specimen media are verified during time out along with the procedure.** 1:1 staff training was provided.
- **Print Epic and specimen labels in procedure room to ensure correct patient label.** Printers were installed in each procedure room.
- **Ensure two-person double check of specimens on all shifts.** If there is no sonographer available, the resident/fellow will perform the second person check. US leadership communicated to staff.
- **Review procedures in advance to ensure accuracy of procedure and specimen orders prior to patient arrival.** US leadership is currently performing reviews of procedure cases the day prior.

BALANCING MEASURE

IMPROVE



CONCLUSIONS

- Specimen related safety events are serious events that can negatively affect patient care and staff morale.
- There are multifactorial causes that contribute to these events. Successful interventions must address these numerous causes in order to decrease their prevalence.
- Open communication, standardized workflows, clear delineation of roles and responsibilities, along with optimization of the electronic chart and physical space proved successful in reducing these errors in a high-volume, hospital-based ultrasound division.