

# Improving Outpatient MRI **Wait Times**

“**Wait times**” = Time between patient arrival in radiology and the start of their MRI.

Justin M. Honce MD

Nancy Pritchard MHA, RT

Julia Drose RDMS,RDCS,RVT

Nancy Cheung MPH



SCHOOL OF MEDICINE

Department of Radiology

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

uhealth

# Improving Outpatient MRI Wait Times

**QUESTION:** Are our outpatients waiting too long prior to their MRI?

American College of Radiology GRID Data				
	University of Colorado	ACADEMIC SITES	WESTERN SITES	ALL GRID SITES
Mean Wait Times (min)	53.5	48	36.7	26

US      Our Competition

**ANSWER:**

- **YES** - Our patients wait longer for MRI compared with other academic and regional non-academic sites.

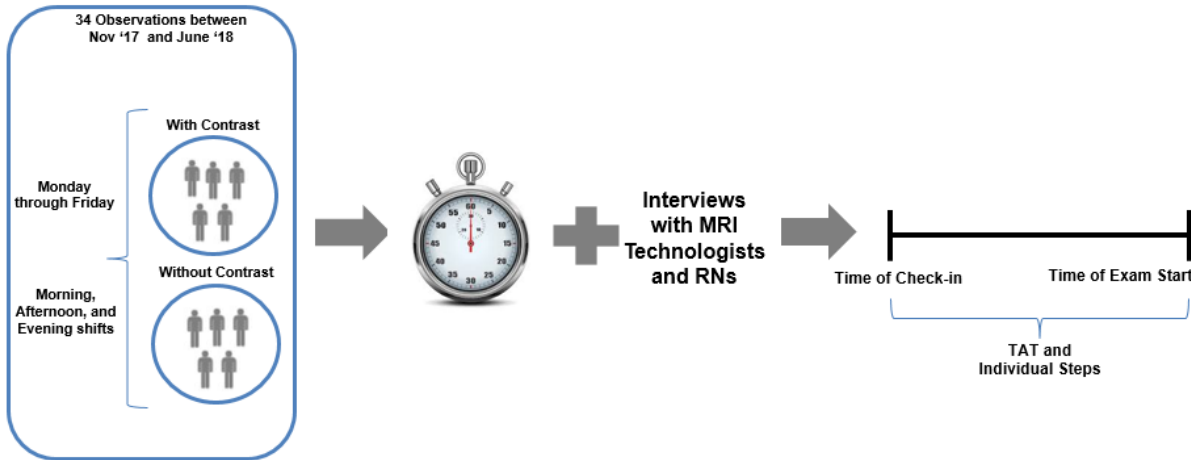
**QUESTION:** Is this perceived as a problem by our patients?

- University of Colorado Patient Experience Survey Excerpts
  - “ Check-in was **slow and inefficient**”
  - “ I **waited 30 minutes** to be seen and I was first on the schedule.”
  - “ My exam started an **hour and a half later than scheduled.**”
  - “ Would like **feedback** on **how much longer** I would be waiting.”
  - “ **My one complaint** was they were not on time for my appointments.”
  - “ My **10:45** MRI didn’t start until **11:20.**”

**ANSWER:**

- **YES** - Patient survey results are largely positive, but wait times are frequently reported as a source frustration.

# Exploring the Problem: Time Studies & Value Stream Mapping



Is it just that patients aren't arriving on time?

Did patients arrive on time?	% of Total Observations (n= 34)
Yes	62%
No	38%

Did the exam start on time?	% of Total Observations (n= 34)
Yes	21%
No	79%

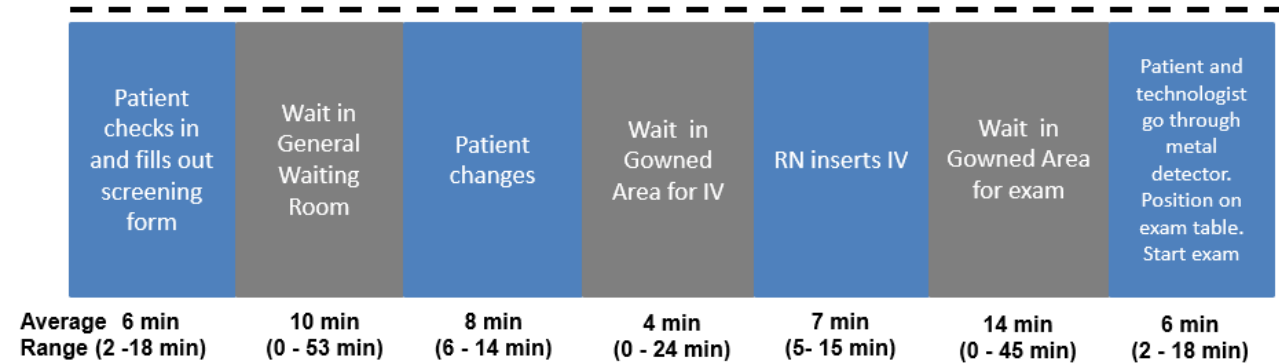
On average...

Patients were on average **4 min early**

Exams on average started **18 min late**

## MRI with Contrast

Value Stream Lead Time Per Exam (Time from Check In to Exam Begin)

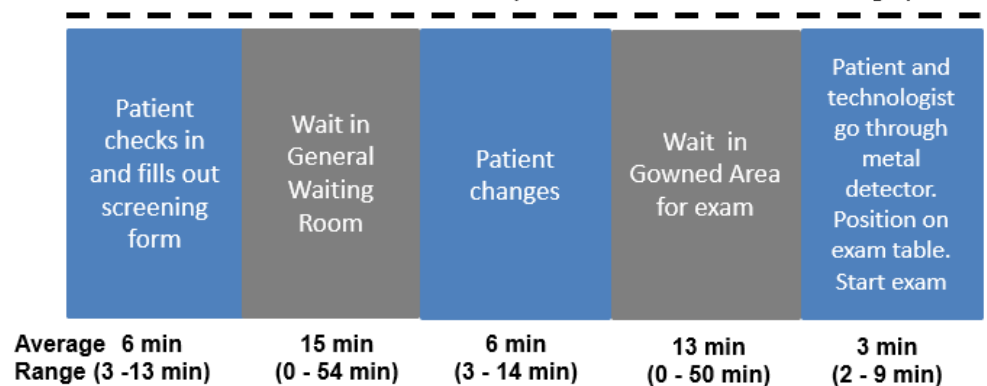


Average Time for Task Work: **27 minutes**

Average Time Spent Waiting: **28 minutes**

## MRI without Contrast

Value Stream Lead Time Per Exam (Time from Check In to Exam Begin)

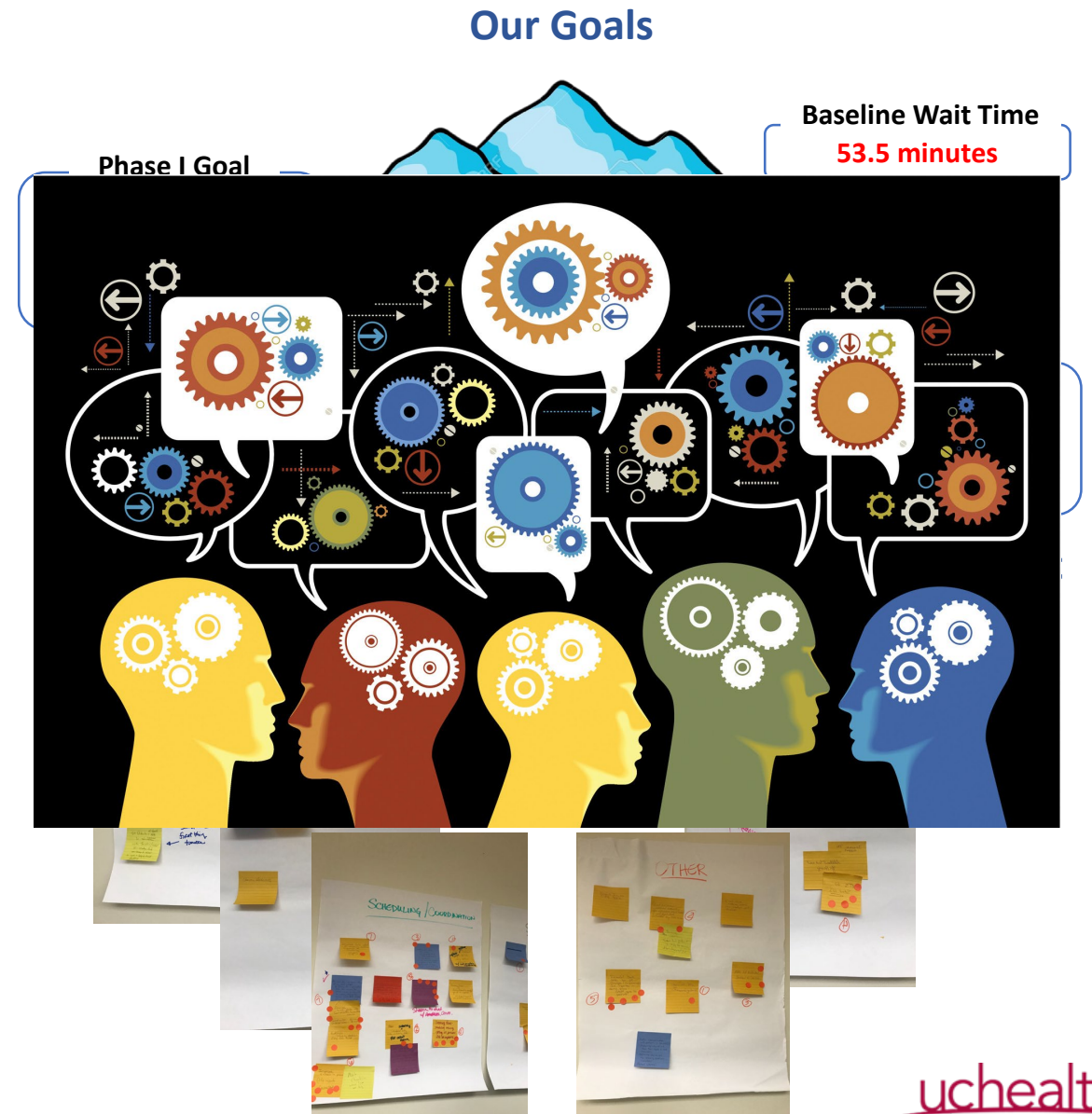


Average Time for Task Work: **15 minutes**

Average Time Spent Waiting: **28 minutes**

# Convening a Guiding Coalition & Setting Goals

- We recruited frontline staff to join us as part of the guiding coalition for this change effort.
- We included representatives who deal with patients during outpatient MRI and others for outside perspectives.
  - Radiology Reception
  - MRI technologists
  - Radiology Nursing
  - CT Technologist
  - Administrative assistant
  - Scheduling Patient Access Reps
- Coalition was tasked with **setting goals** for wait time reductions and **brainstorming PDSA interventions** to implement.



# Putting Ideas into Action

## PDSA #1

	Average Wait Time (min)
Baseline	53.5
PDSA #1	60

Percent (%) change in wait time from baseline: -12%



## Providing Jewelry / Misc Item Bags

- Small labelled clear plastic bags were given to patients by front desk staff at check-in.
- Goal was that patients would have such items stored prior to being called back for MRI, decreasing time in changing rooms or removal prior to entering MR suite.
- Patient surveys indicated patients appreciated getting the bags at check-in and thought they made the changing process easier.
- Unfortunately, average wait times did not improve.

### Lessons learned:

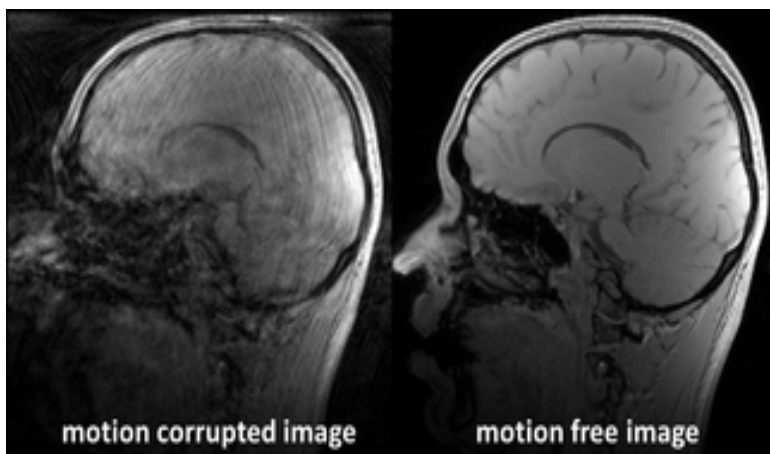
- Patient perception of improvements do not necessarily translate to improvements in measured times.
- Always be prepared for interventions to produce the opposite of the intended result

# Putting Ideas into Action

## PDSA #2

	Average Wait Time (min)
Baseline	53.5
PDSA #2	48

Percent (%) change in wait time from baseline: +10%



## Limiting “Repeats” in Moving Patients

- Often MR technologists repeat numerous sequences when patients don't hold still during scanning. This results in scans running over their allotted time.
- For this intervention, repeats were limited to no more than two attempts with the goal of ensuring that the following patient/examination had a better chance of starting on time.
- If more than two attempts were considered necessary, the patient would be rescheduled with sedation rather than prolonging the exam.
- This intervention resulted in a 5.5-minute improvement.

### Lessons learned:

- Rather than just focusing on the process revealed in our time studies, interventions focused on what is happening to the previous patient can substantially improve efficiency overall.

# Putting Ideas into Action

## PDSA #3

	Average Wait Time (min)
Baseline	53.5
PDSA #3	41

Percent (%) change in wait time from baseline: +23%



## Alerts for Patient Readiness & IV Access

- Time studies had revealed long waits for MRI after the patient was gowned and ready for scanning.
- RNs who work in direct line of site of the gowned patient waiting area were tasked with alerting technologists the moment the patient was ready, rather than waiting for technologists to come and check.
- Radiology nurses typically place IVs for contrast studies but frequently get backed up. Rather than waiting for nursing availability, MR technologists were tasked with starting IVs themselves when nursing was busy.
- Post intervention surveys showed that both interventions were perceived to improve the workflow, but nursing felt they were quite busy and didn't always alert technologists in time.

### Lessons learned:

- We must be careful to ensure that even if there are improvements in measured outcomes, we aren't unduly burdening our staff with new processes. While alerts from nursing improve wait times, a longer-term solution (ie video monitoring of the wait room by our technologists) is needed to prevent burn out.
- Rather than waiting, having a technologist perform the IV themselves performs two goals: 1) Offloads workload from nursing when they are overburdened. 2) Gets patients read for MRI faster.



# Putting Ideas into Action

## PDSA #4

	Average Wait Time (min)
Baseline	53.5
PDSA #4	40

Percent (%) change in wait time from baseline: +25%



## Assigning an MR Technologist “Float”

- Patients were frequently waiting long periods of time in the main radiology waiting room and were brought back to changing room by tech assistants when they were available.
- A MR tech “float” position was assigned each day and tasked with bringing patients back for changing immediately after arrival, verify the screening form and answering patient’s questions (for which tech assistants often were unable to do fully).
- MR technologists unanimously found this float position to be quite useful, not only for the above stated reasons but also it substantially improved morale as the float tech “had their back” during busy days.

### Lessons learned:

- MR Safety screening takes time, and technologists were always re-screening patients if only the tech assistant had evaluated the form. By having an MR technologist perform the screening during the walkback/waiting, no re-screening was needed, speeding up patient care.
- New positions can often be created without increasing total FTE; it often just takes creativity / experimentation in changing schedules to accommodate this.



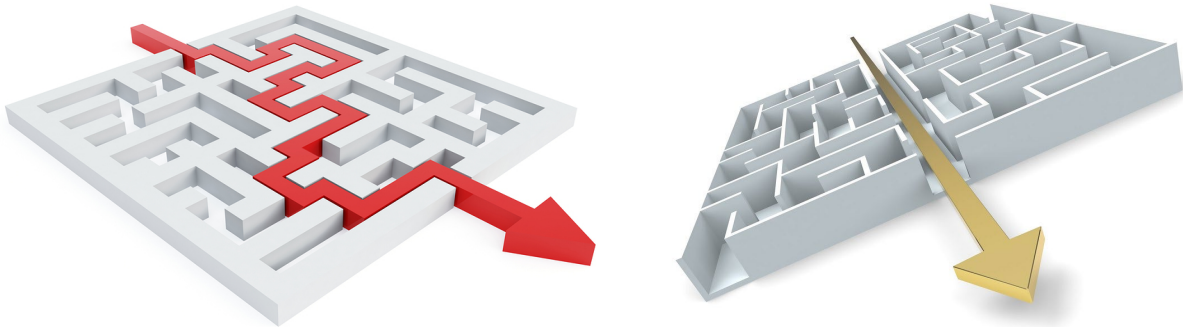


# Putting Ideas into Action

## PDSA #5

	Average Wait Time (min)
Baseline	53.5
PDSA #5	42

Percent (%) change in wait time from baseline: +22%



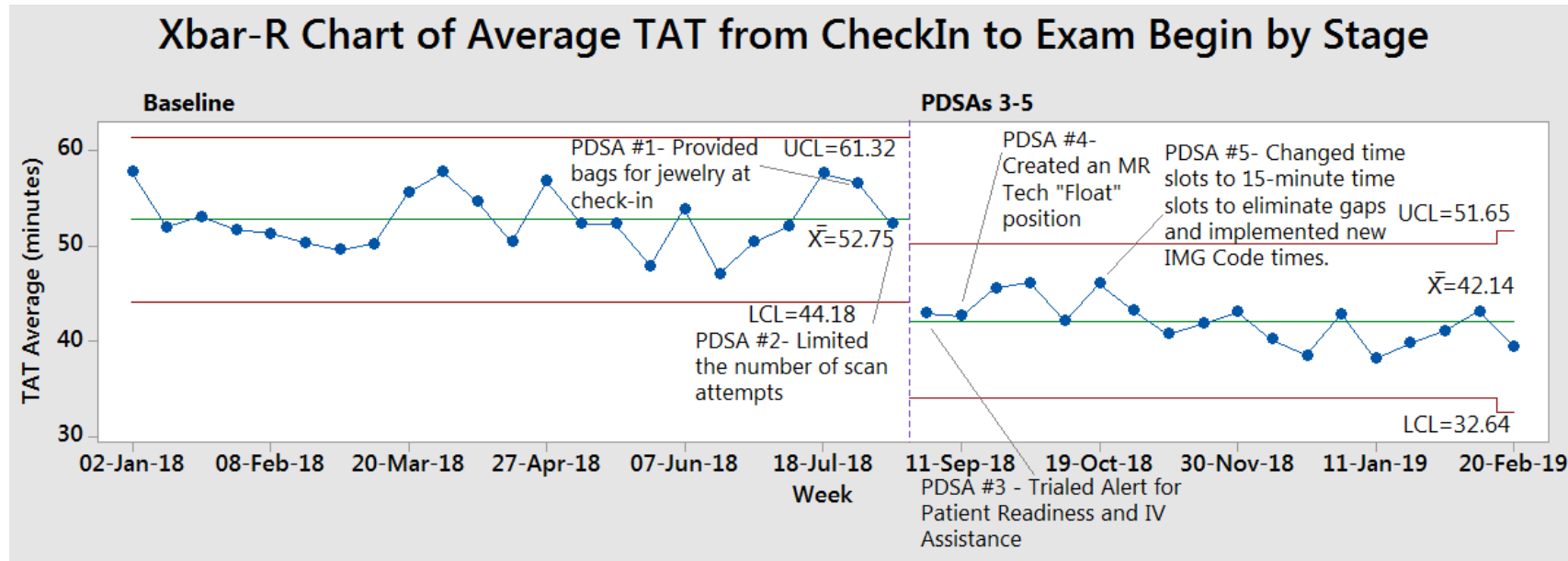
## Updating IMG Codes with 15 min Increment Slots

- Standard MRI time slots were 45 minutes in length, but actual scan times for specific studies were quite variable, resulting in scans going over time, or gaps remaining in the schedule between the slots.
- Updating IMG codes to use specific numbers of 15-minute increments decreased empty gaps on the schedule and ensured scans were less likely to go over time.
- This intervention required significant updates to our EHR which took substantial time and coordination to set up.
- Added benefit of this intervention is an increase in total number of scans able to be performed each day.

### Lessons learned:

- Even though low hanging fruit are the easiest to implement, more complex interventions can be tried as well, they just need more prep time. We were able to work in parallel, doing other PDSAs while prep work for this moved forward.

# Conclusions – Sustainability & Next Steps



- Longer term monitoring has demonstrated we have sustained a 22% (11 minute) improvement in wait times from the baseline.
- Our next steps are to identify additional areas for improvement to achieve our further goal of <36 minute.
- We will continue to monitor wait times to ensure compliance and further sustain improvements.
- A key part of our success was our guiding coalition, who consisted of a wide variety of frontline staff with various experience and ideas but all dedicated to improving patient experience at UCH.
- Much of our wait times seem to center around the issues of communication: either the patient is waiting for the tech or visa versa. Interventions focused on addressing this issue had among the largest impacts.