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Shedding Light on the Off-Hours Coverage Gap in Radiology: Improving Turnaround Times and Critical Results Reporting

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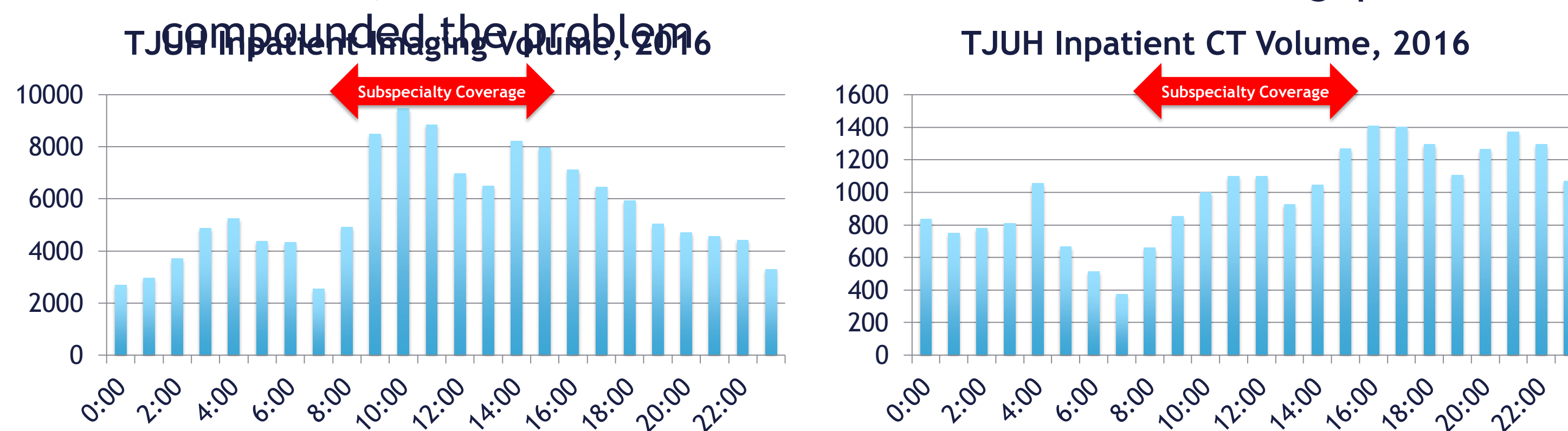
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Background

- Delays in radiology reporting have direct ramifications on patient care & outcomes, patient safety, and costs
 - Per The Joint Commission, "Delay of treatment" ranked as the sixth most frequently reported sentinel event in 2016
- Traditionally, off-hours radiology coverage is disproportionately limited:
 - Daytime subspecialty teams cover inpatient studies from 8AM-4PM
 - On-call residents and fellows provide off-hours coverage for some stat cases, but their primary responsibilities are ED studies
- Limited radiology off-hours coverage poses threat to patient safety
- Increasing volume of cross-sectional studies, increasing ED imaging utilization, and Joint Commission mandate on ED throughput have compounded the problem

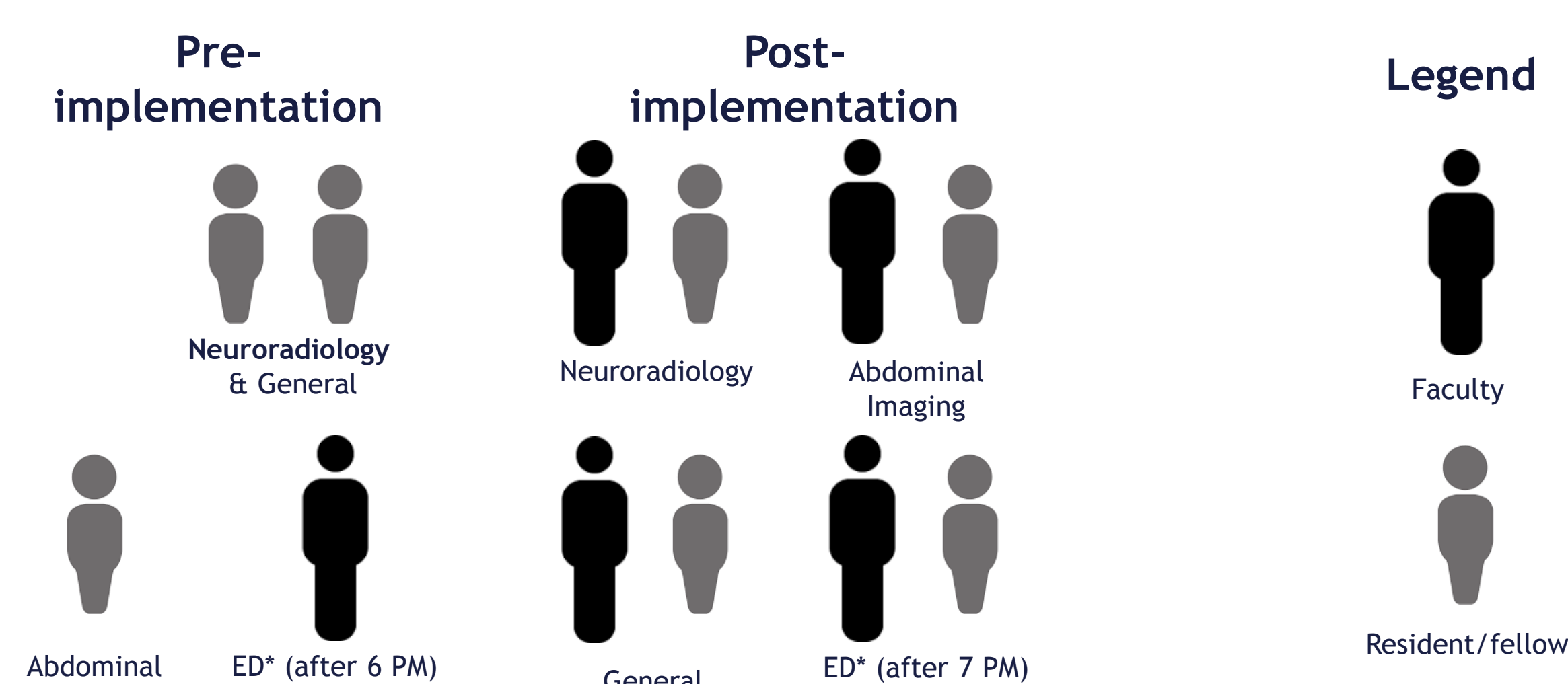


- FY 2016: 72,322 of 133,766 studies performed between 4PM-8AM
- Disproportionately high number of CT studies performed late afternoon through the evening
- Many challenges to optimizing off-hours staffing → lack of funding, daytime service demands, resistance to change, etc.

Objective

- Devise a plan to optimize off-hours faculty and trainee staffing within the Department of Radiology
- Measure the magnitude of patient safety gains in terms of report turnaround times (TAT) and critical results communication times (CRC)

Intervention



Intervention (cont'd)

- As part of the Radiology Operational Excellence Program (ROE), a team of radiology faculty, trainees, and technologists was tasked with revising off-hours coverage through a 5-step Kaizen process
- Multiple staffing changes implemented as of July 5, 2016:
 - Subspecialty team-based evening call shifts until 8PM
 - Neuroimaging, Body Imaging: staggered shifts, 12-8PM
 - General (plain film): extended shifts, 7:30 AM-8PM
 - Establishment of Emergency Radiology mini-fellowship
 - Senior resident ER coverage, 7 PM-12 AM
 - Decrease junior resident call burden
 - Change Emergency Radiology faculty hours to extend early AM attending coverage
 - Extend resident Night Float shift by 1 hour
- With the exception of resident Night Float (not pictured) and faculty General shifts, work hours were not increased

Results

Structure Measures

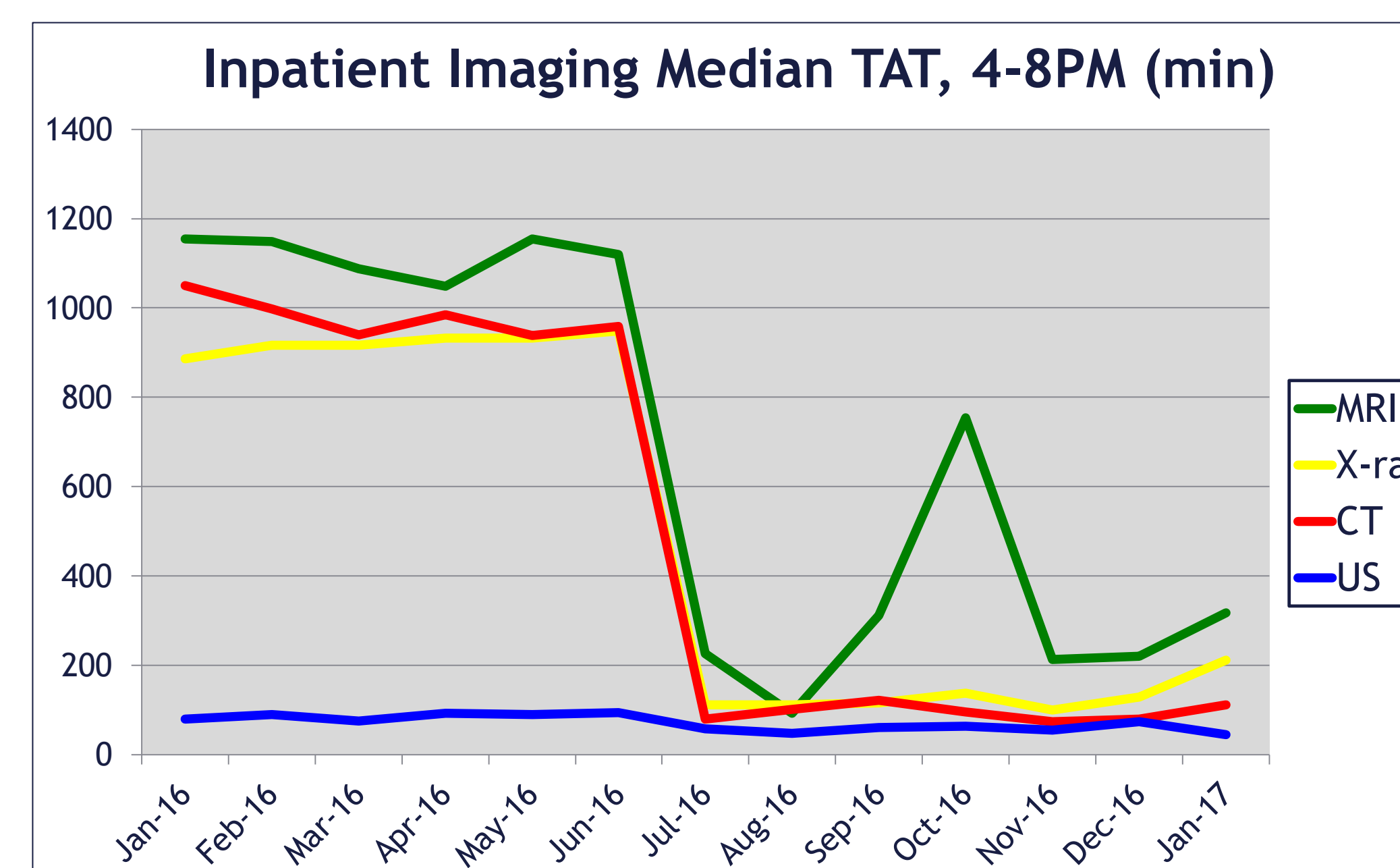
- Replaced subspecialty teams for isolated residents/fellows
- Added faculty members to evening coverage

Process Measures

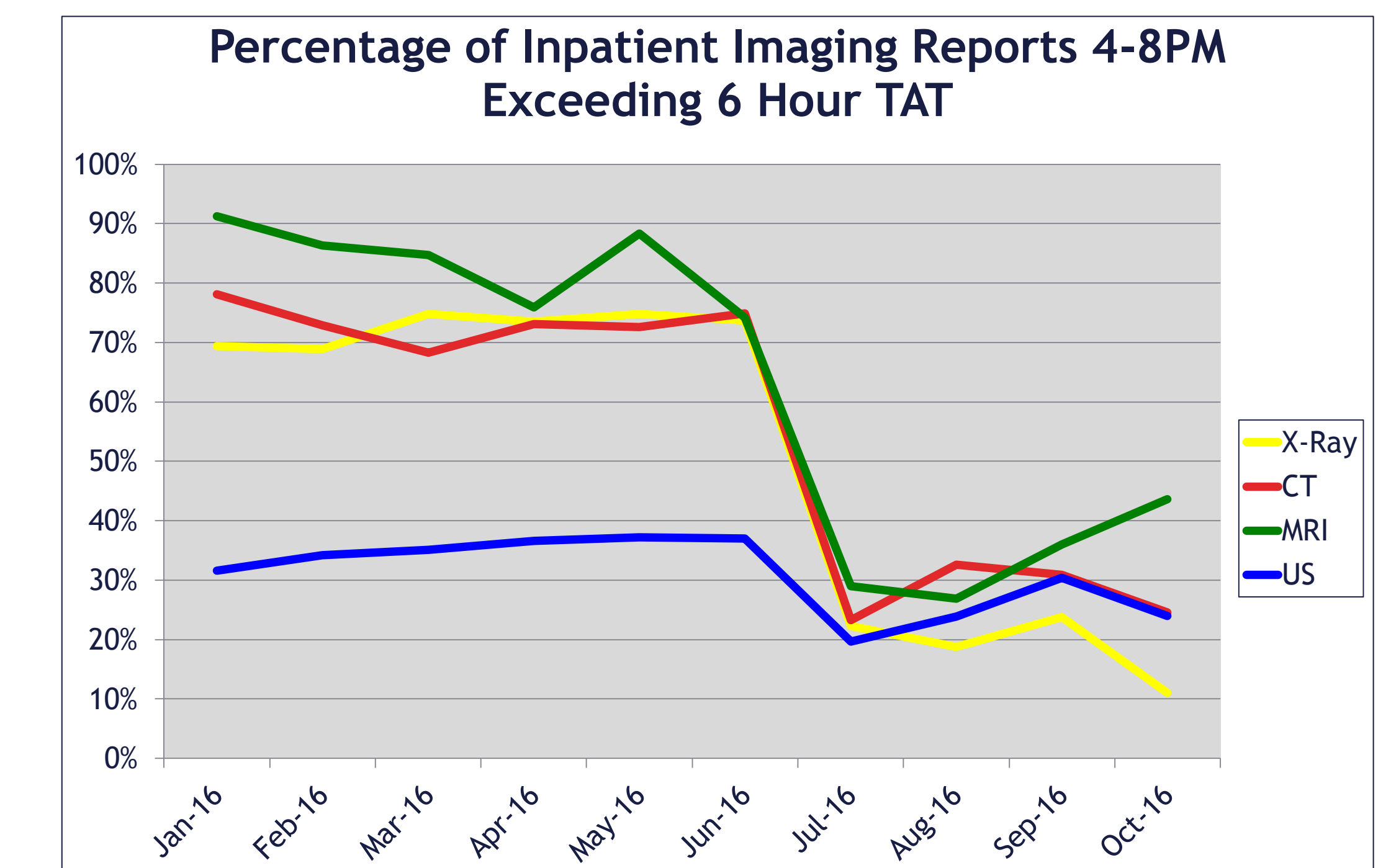
- Obtained from analytics software using data from the radiology information system
- Evaluated pre & post implementation metrics:
 - Radiology imaging turnaround times (TAT)
 - Percentage of studies exceeding departmental benchmark of 6 hrs TAT

Outcome Measures

- Critical results communication (CRC) times for pneumothorax (PTX) and intracranial hemorrhage (ICH) pre & post plan implementation
- Survey results: faculty, resident and technologist perceptions

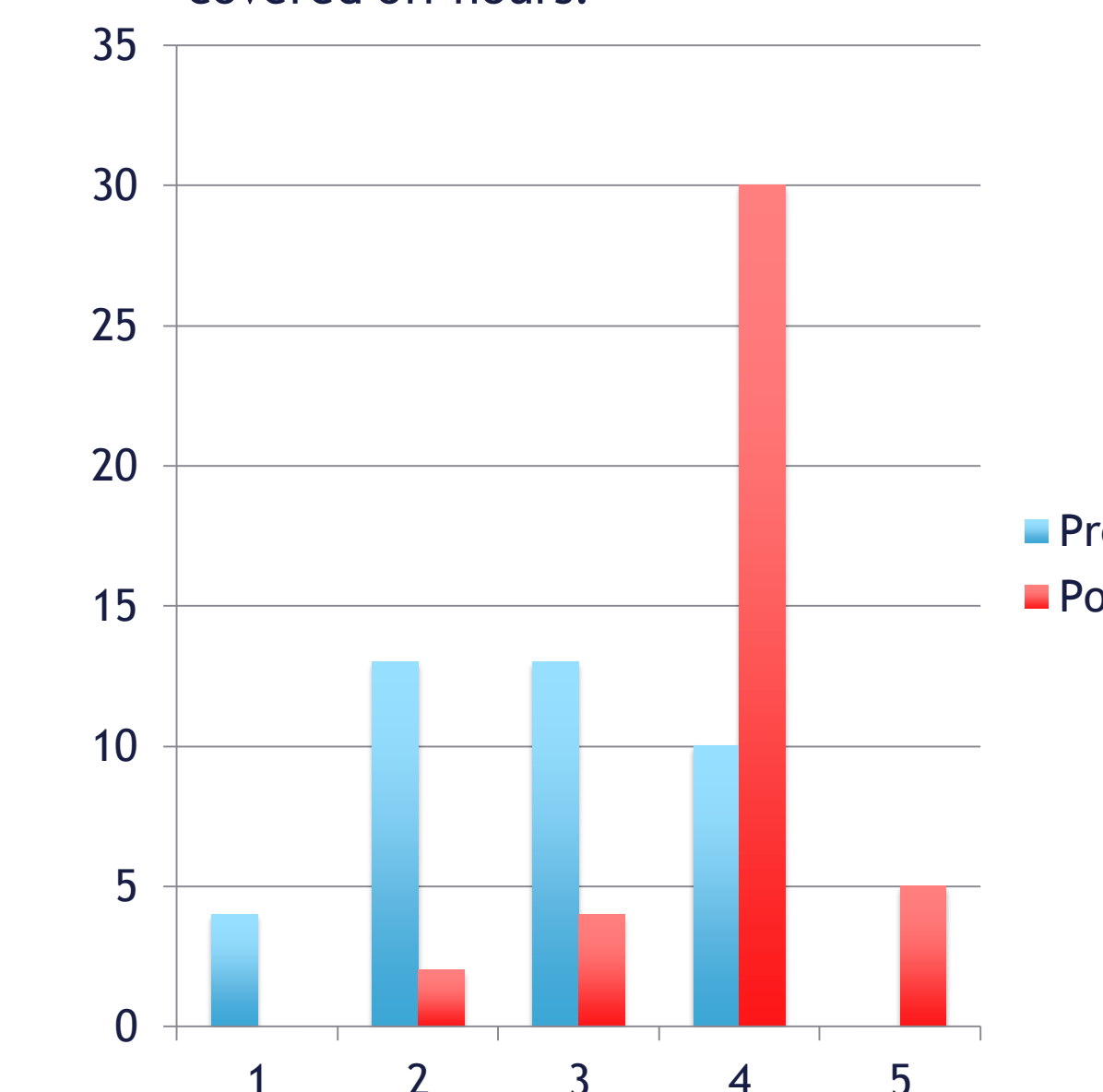


Results (cont'd)

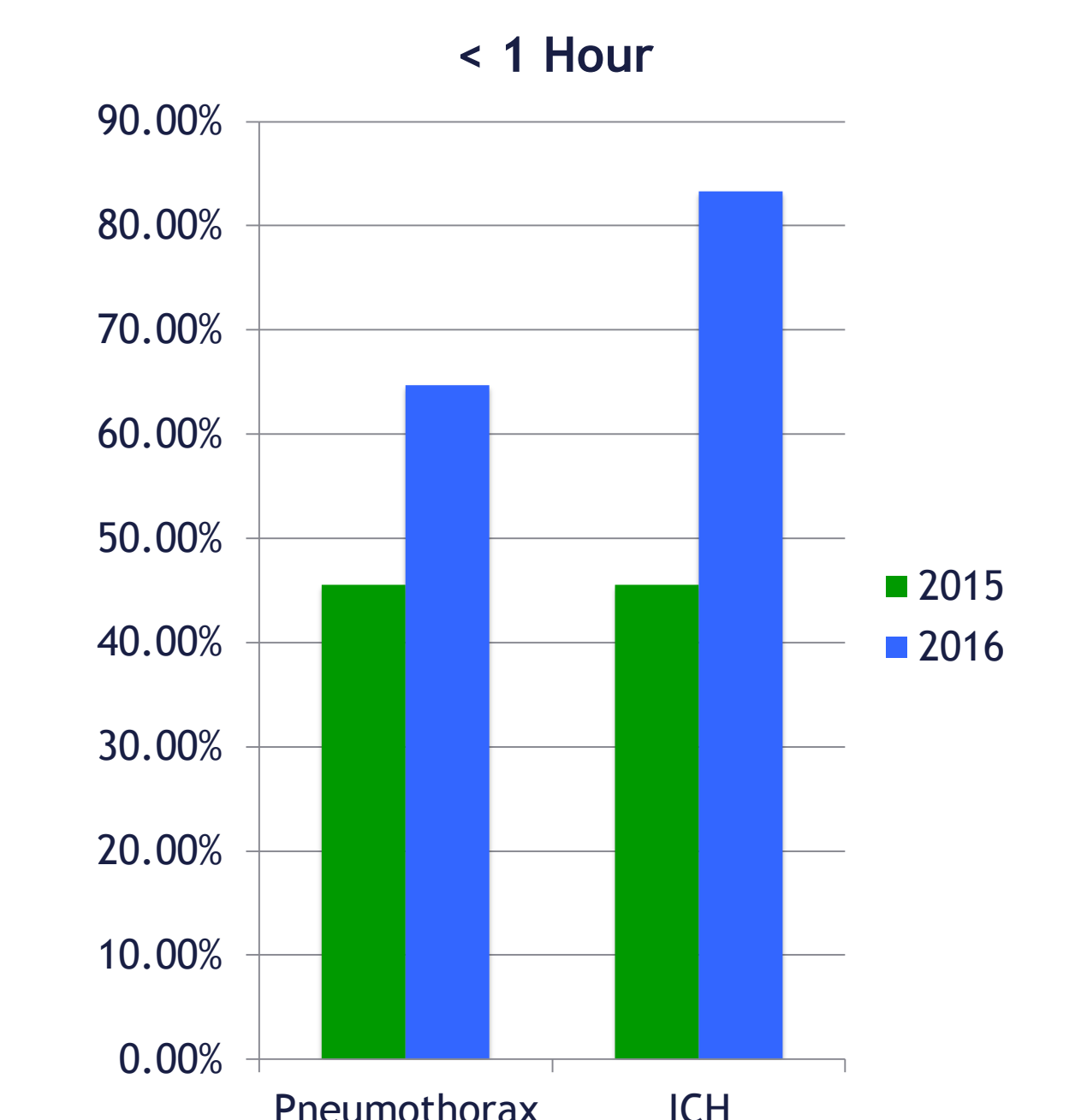


Faculty Survey

On a scale of 1-5 (1 = poorly and 5 = optimally), how well are inpatient studies covered off hours?



Inpatient Critical Results Communication: Percentage of Reports Meeting Goal TAT



Conclusions

- Better matching of radiology staffing with inpatient imaging workflow patterns improves turnaround times and critical results reporting
- Expect improved reporting of imaging findings to translate into fewer delays in patient care and improved patient safety
- Further improvements/future directions → enterprise solution, optimizing inter-disciplinary communication, addressing hospital operational inefficiencies

References

- The Joint Commission. Summary data of sentinel events reviewed by The Joint Commission. Published January 13, 2017. Available at: https://www.jointcommission.org/assets/1/18/Summary_4Q_2016.pdf. Accessed May 10, 2017.
- Zygmunt ME, Itri JN, Rosenkrantz AB, et al. Radiology research in quality and safety: current trends and future needs. Acad Radiol 2017;24(3):263-72.