A QI Project to Optimize Imaging Workflow in the ED

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June 27, 2019

Background

Imaging ordered on evenings and weekends required paging the radiology resident on call for

The number of calls required is an inefficient process

Aim

To optimize the imaging ordering process in the ED by **removing unnecessary steps** in the ordering process and to observe its impact on performance indicators

Intervention

Starting April 30, 2018, all CT scans ordered in EPR from the ED between 1700 and 2000 on weekdays were automatically protocolled by the JDMI resident without needing to page the resident on call and discuss further

These hours were then extended to weekends from 0800-2000 on September 29, 2018

Measures

Qualitative

- Perceptions of efficiency
- Perceptions of disruptions
- Provider satisfaction
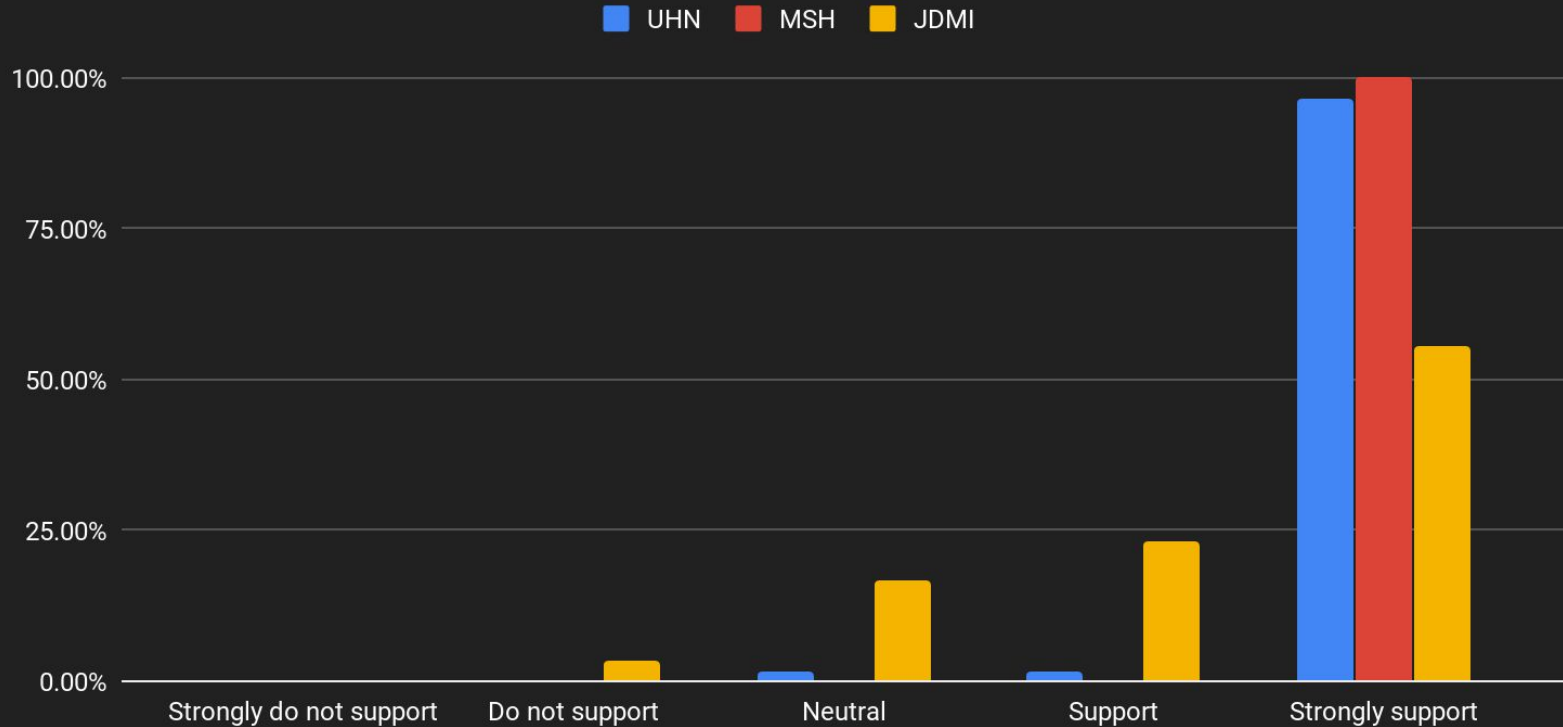
Quantitative

- Volume of CT scans
- Volume of pages to the radiology resident
- Time from ordering to completion of scan
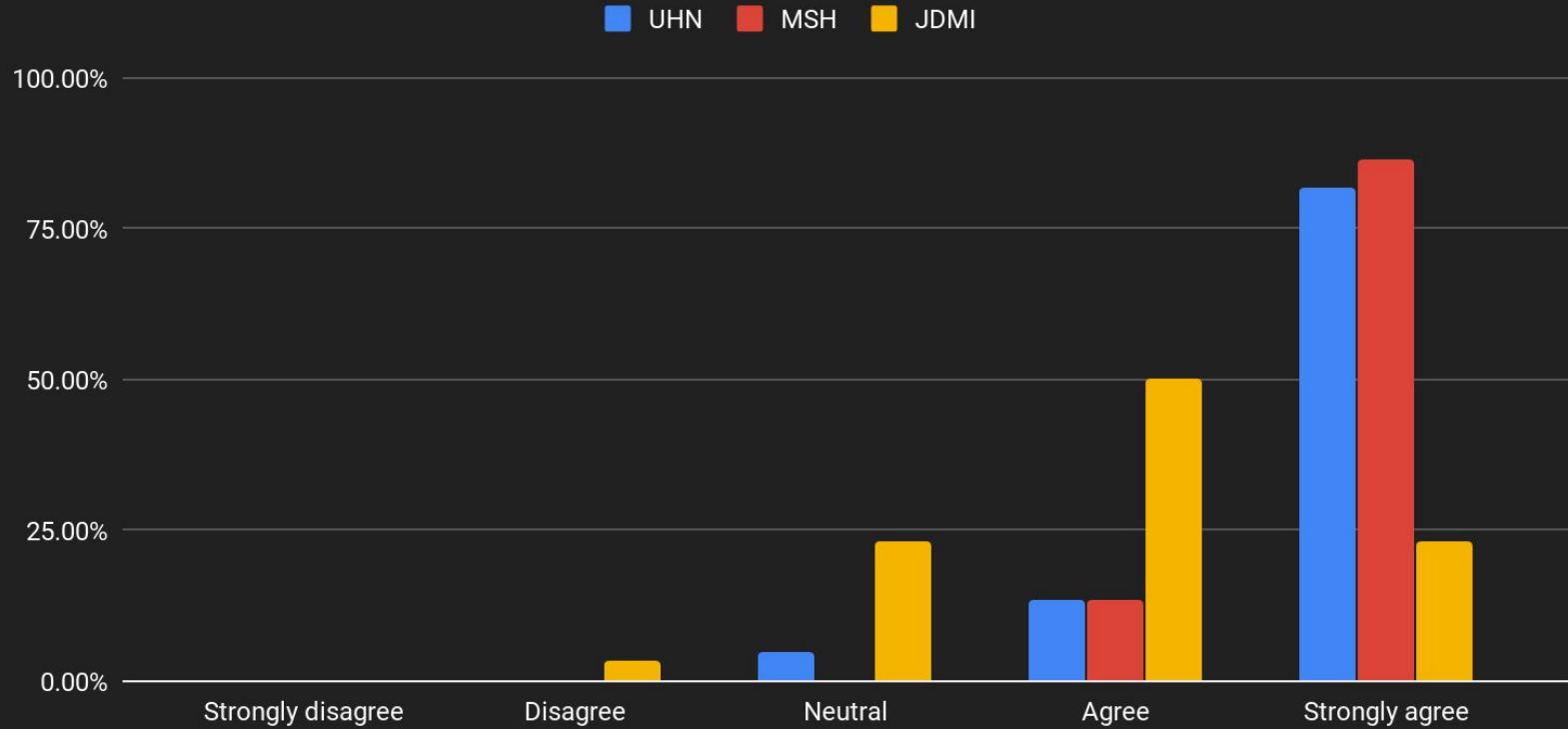
Qualitative Measures

Survey via Survey Monkey

- UHN - 60/79 responded (75.9%)
- MSH - 22/29 responded (75.9%)
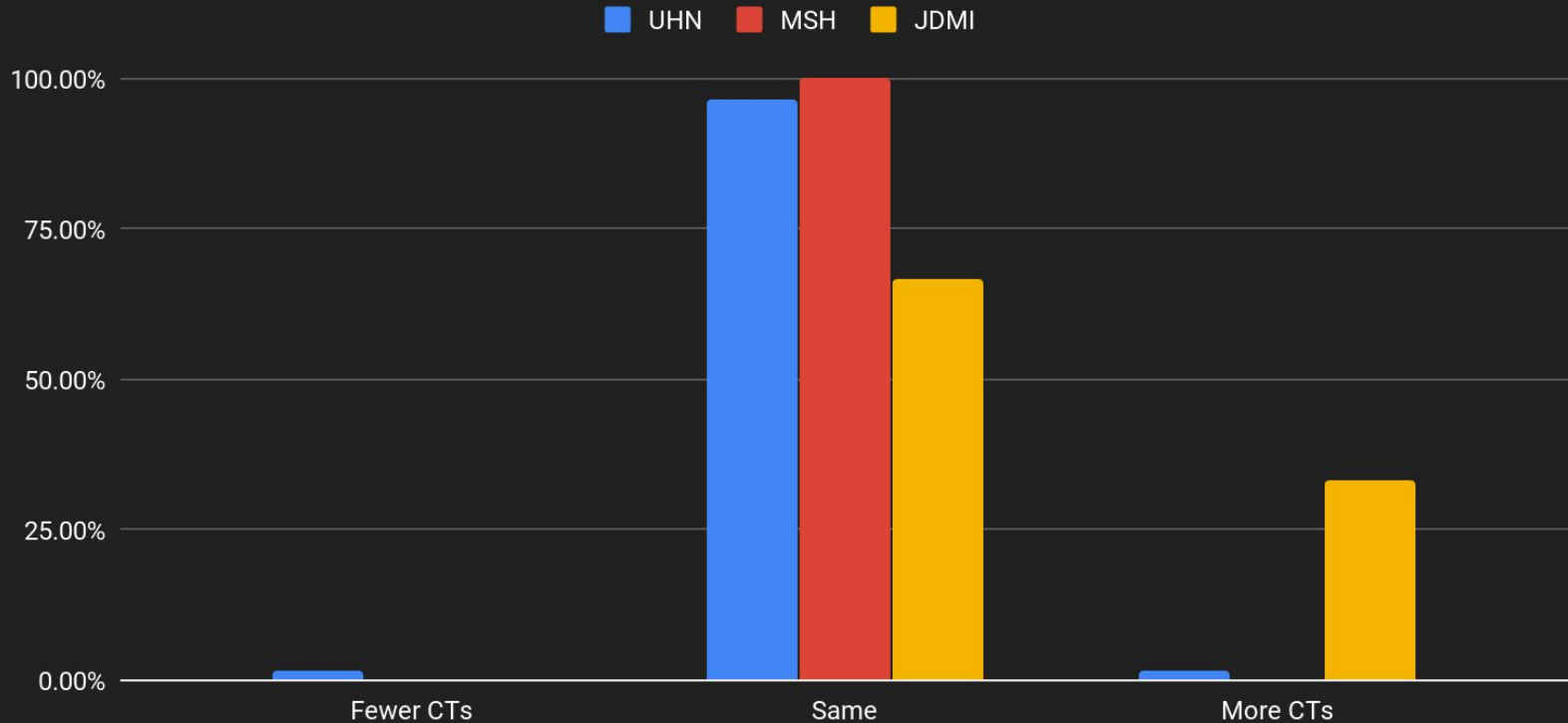- JDMI (residents) - 30/38 responded (78.9%)

Do you support the change @ JDMI whereby our radiology residents protocol ED CT scans from 5-8PM on evenings and 8AM-8PM on weekends without being paged?
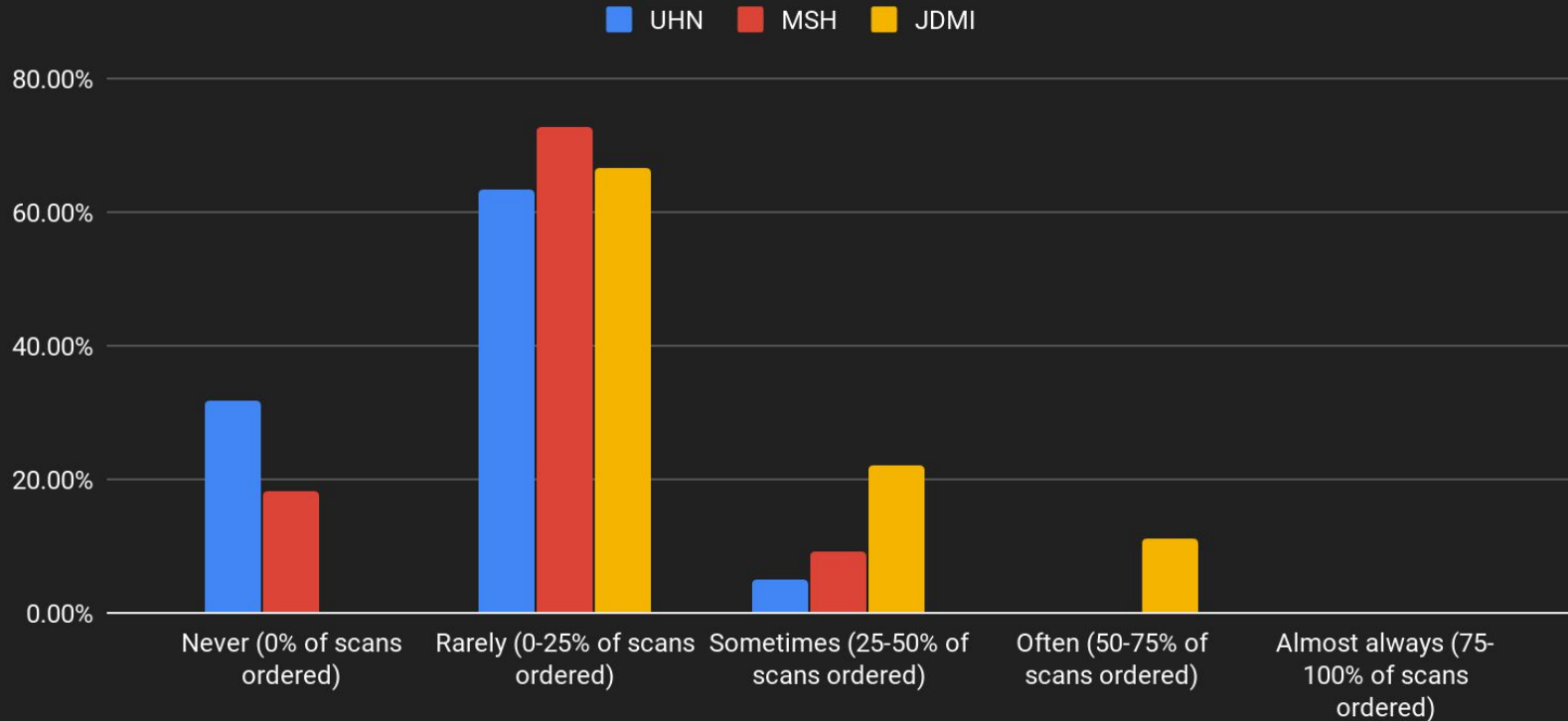
In your opinion, has this change resulted in a positive impact on your clinical workflow efficiency during evenings and weekends?
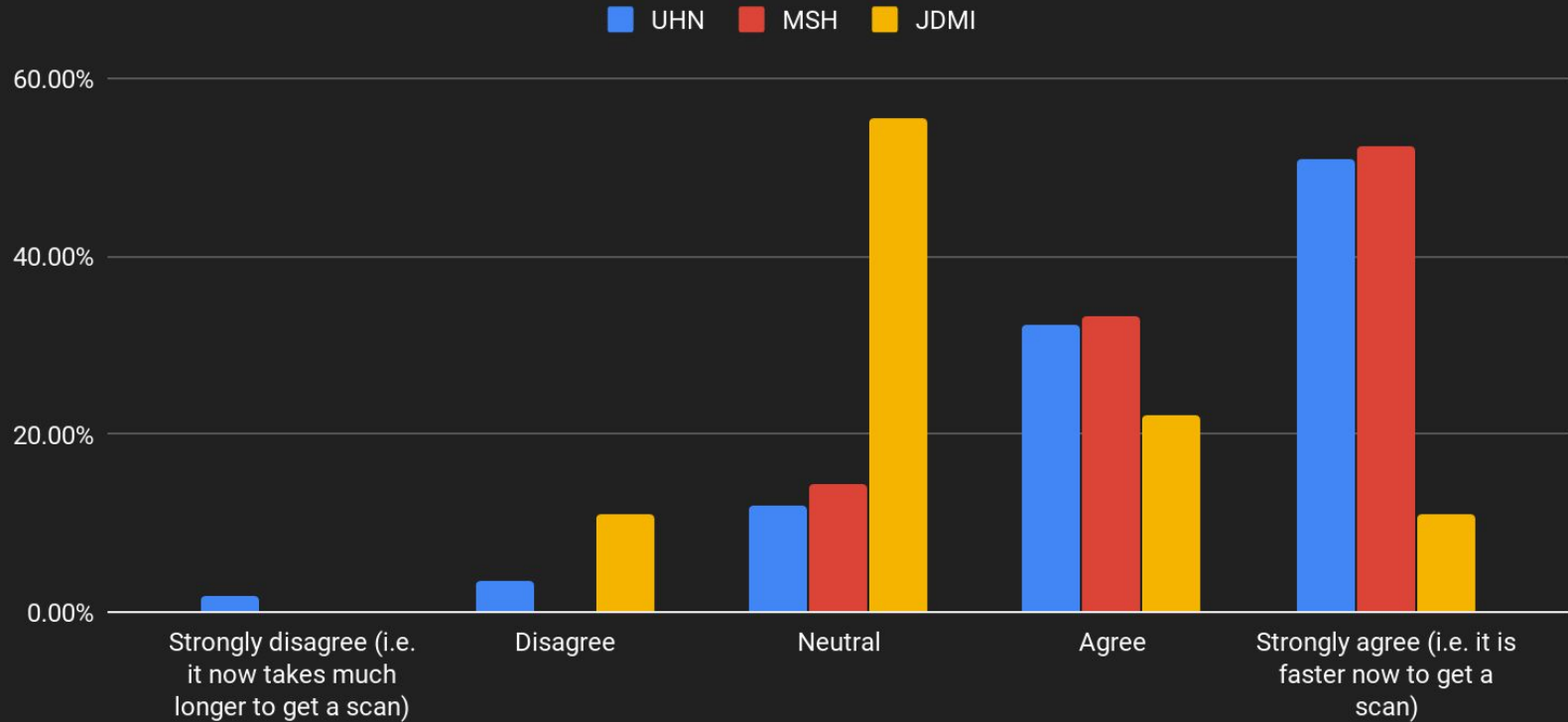
9

In your experience, have you changed the number of CT scans ordered during the evening and weekends than you otherwise would have before the change was implemented?
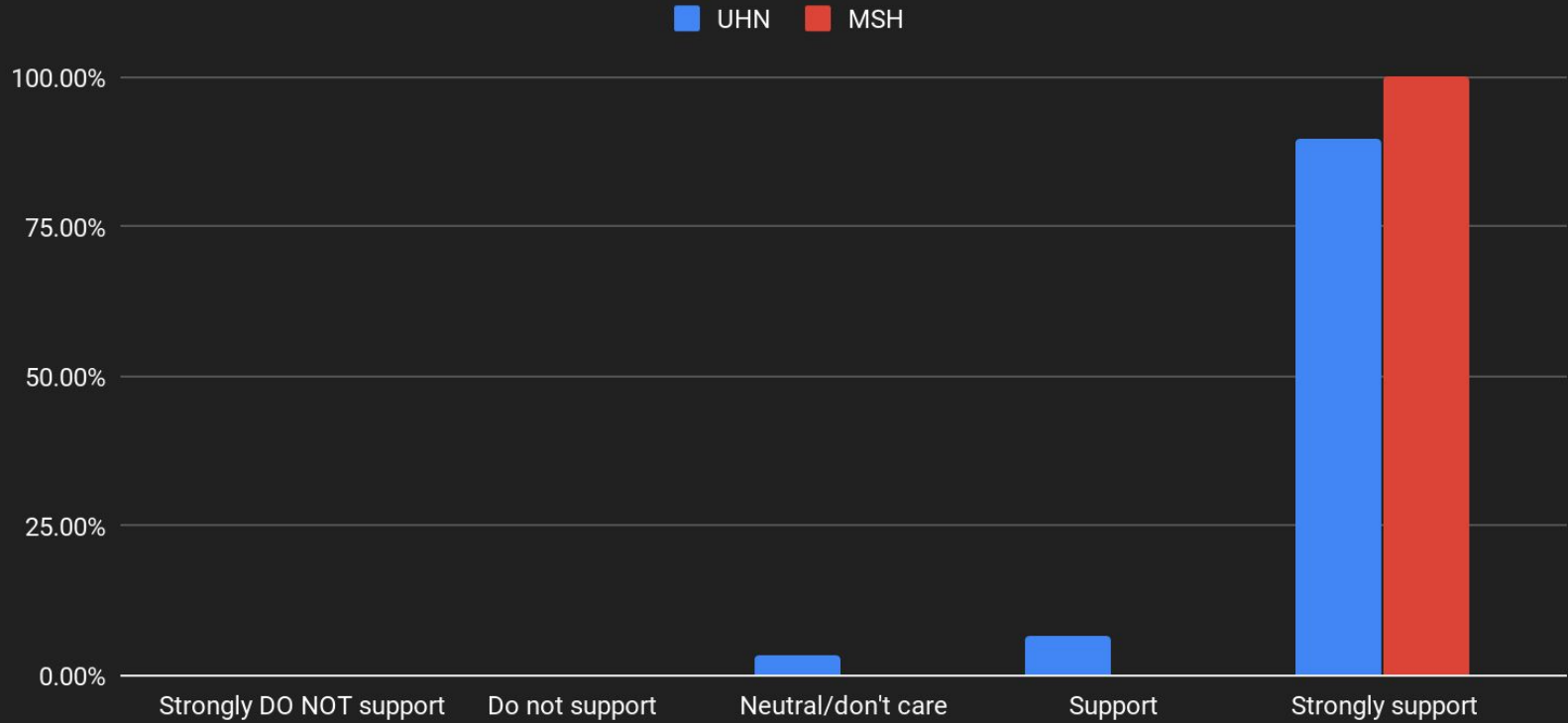
In your experience, how often are calls required for clarification of a CT ordered during evenings and weekends?
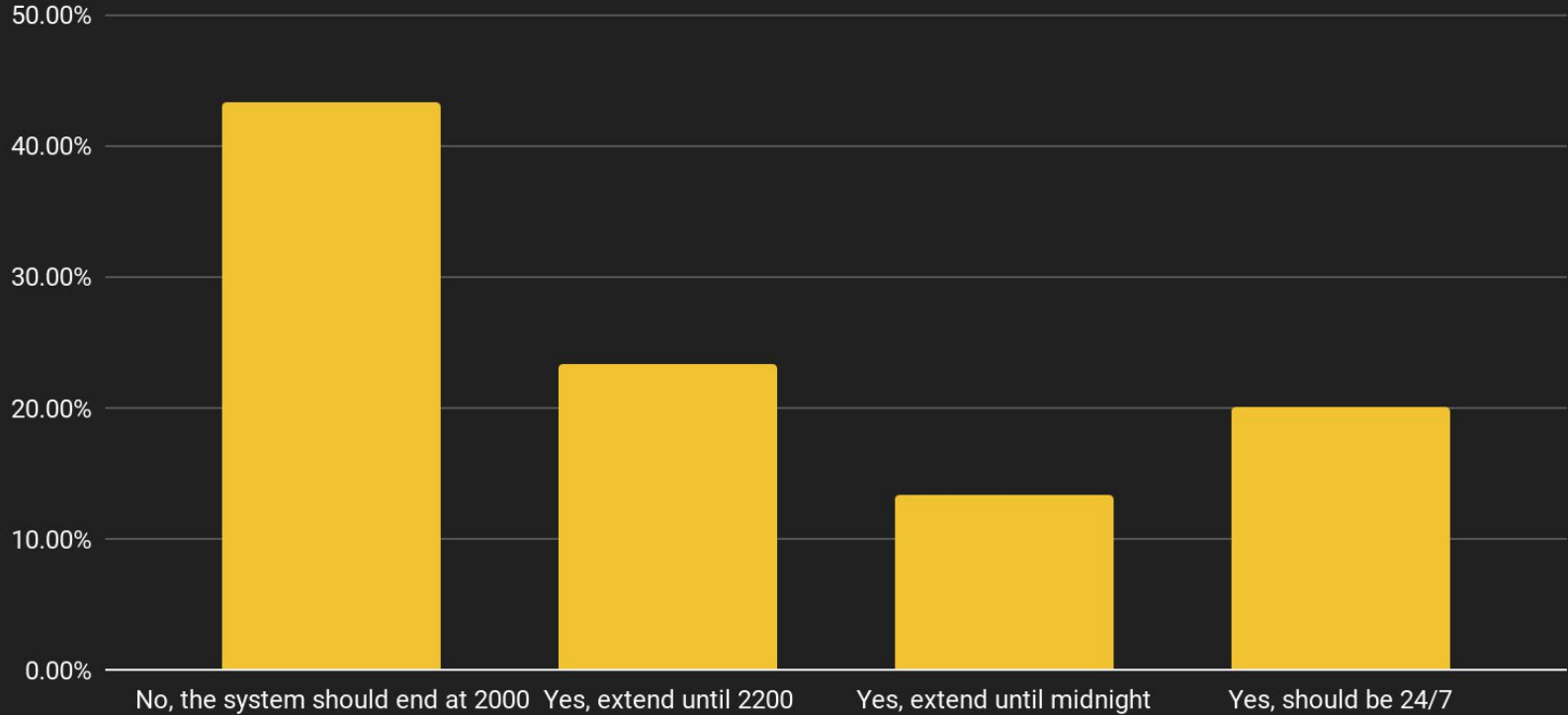
In your experience, do you feel this change has improved the timeliness of imaging studies being done during evenings and weekends?

Would you support this process being implemented for even more hours?

Would you support this process being implemented for even more hours? (JDMI ONLY)
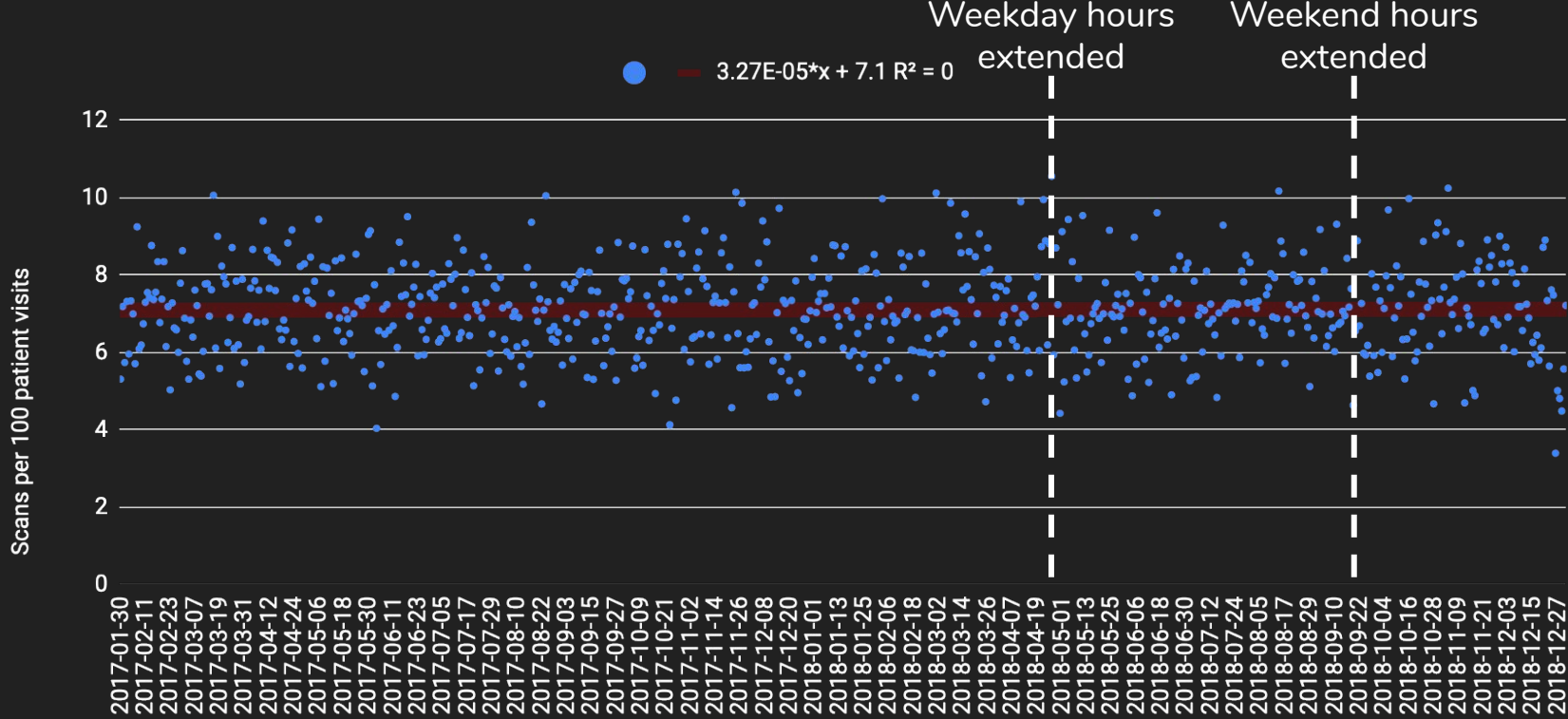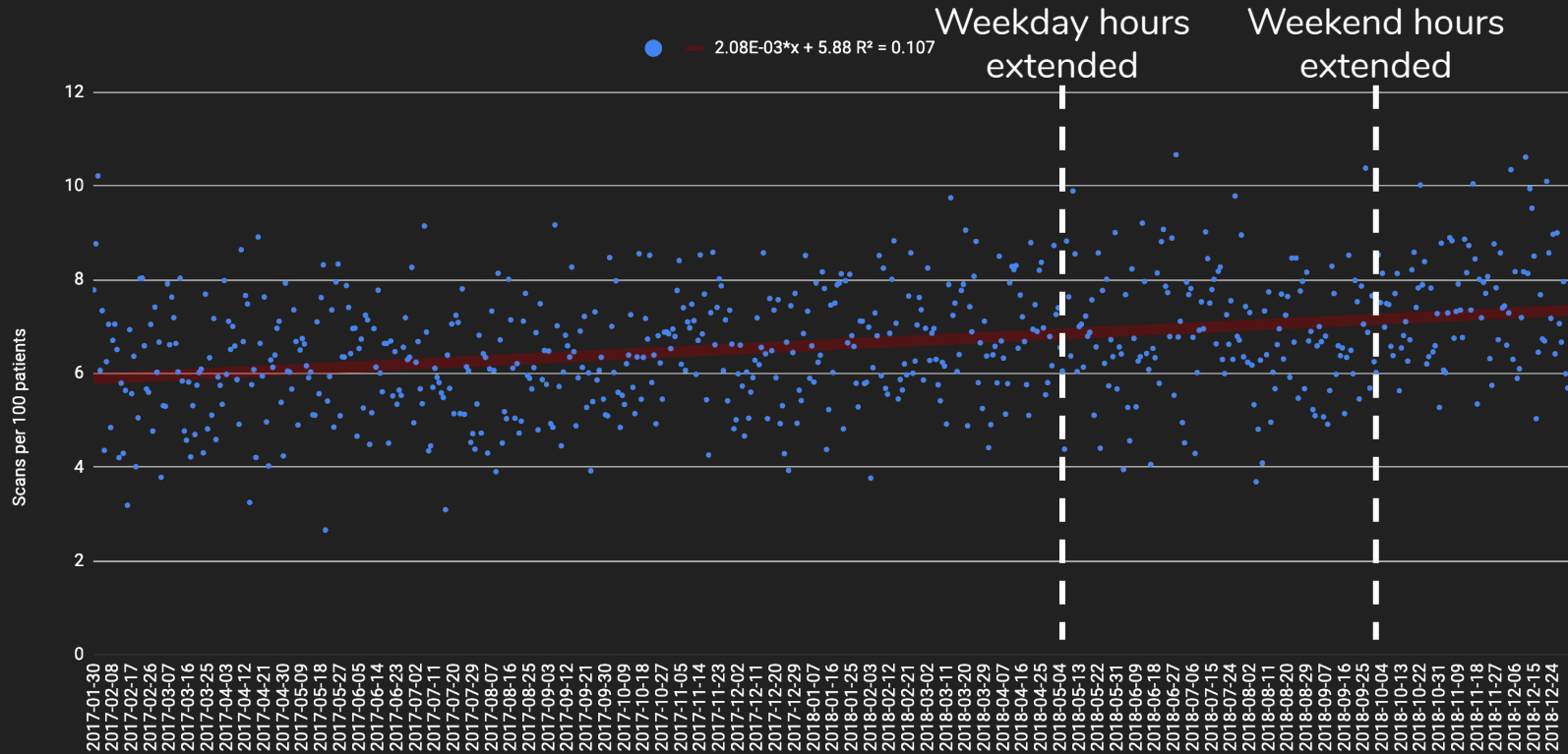
Quantitative Measures

Overview

- Data was collected from January 1, 2017 to December 31, 2018
- CT utilization
    - Protocolled scans
    - CT head (control group)
- Segmented regression analysis

Non-contrast CT Brain Utilization

CT Utilization (requiring resident protocol)

Weekday hours extended

Weekend hours extended

2.08E-03*x + 5.88 R² = 0.107

Scans per 100 patients

18

Segmented Regression - non-contrasted CT brain

Variable	Coefficient	p-value
Weekends	-0.0457012	0.642
Time (background)	0.0003386	0.420
Extending **weekday** hours	-1.40	0.163
Time effect of extending **weekday** hours	0.0024275	0.296
Extending **weekend** hours	0.020546	0.947
Time effect of extending **weekend** hours	-0.0074391	0.115

Segmented Regression - CT requiring resident protocol

Variable	Coefficient	p-value
Weekends	-0.8525363	**< 0.0005**
Time (background)	0.0018802	**< 0.0005**
Extending **weekday** hours	0.2067836	0.347
Time effect of extending **weekday** hours	-0.004288	0.060
Extending **weekend** hours	0.6233513	**0.038**
Time effect of extending **weekend** hours	0.0069627	0.133

Results

- Both departments think removing the paging process is a good idea
- Overall utilization of CTs requiring protocolling increasing over time
- Minimal increase (0.68 scans per 100 visits) after adding weekend hours
- No significant change in time to protocol or time to scan being performed

End