

# Improving overnight turn-around-time and restoring on-call resident responsibility in an Academic Medical Center

J. HUGO DECKER<sup>1</sup>, AMY BUI<sup>1</sup>, LAWRENCE CHEUNG<sup>2</sup>, GAUTAM AGRAWAL<sup>2</sup>, PAYAM MASSABAND<sup>1</sup>,  
DAVID LARSON<sup>1</sup>, GLORIA HWANG<sup>1</sup>, LAWRENCE CHOW<sup>1</sup>

<sup>1</sup> Stanford University School of Medicine

Department of Radiology

<sup>2</sup> Vision Radiology

Contact: [jhdecker@stanford.edu](mailto:jhdecker@stanford.edu)



# Introduction



- The ED is under pressure to make rapid disposition decisions.
- Decisions are based on H+P, labs, consults, procedures, and imaging.
- The ED demands rapid, high-level interpretations by radiology as part of the ED effort to decrease patient length of stay.

# Introduction – Overnight Call Experience

Resident      Fellow      Attending



Baseline



ED Demand

- At our institution, residents gradually lost independence as the ED required higher level reports for overnight exams (from fellows or faculty).
- Residents had been restricted to issuing unpublished drafts, fellows published preliminary reports, and attendings issued final reports the following day, often after medical decision making.
- Our department revisited the resident call structure as we transitioned to providing overnight attending-level reports with a rapid turn-around-time (TAT).

# Introduction – Restoring Resident Prelims

Resident      Fellow      Attending



Baseline



Opportunity

- Academic medical centers must balance the demands for rapid turn-around-time (TAT) with the educational value of call for residents.
- A resident task force identified an improvement opportunity when transitioning to attending final reads, based on evidence that greater resident autonomy increased ratings of the educational experience of call.
- The task force recommended residents issue published preliminary reports rather than unpublished drafts.

# Methods

Resident

Contribution   None   Draft   Prelim



Baseline (12/2018 – 12/2019)



Intervention – Neuro (01/2020)

Non-Neuro (11/2021) – Chest, Body, CVI, MSK



Data collection (12/2018-03/2023)

- Final turn-around-time (TAT).
- Resident report contribution (None, Draft, Prelim).
- ED cross-sectional exams from 8:45 PM – 7:30 AM; 7 days a week.

Baseline

- Residents issued an unpublished draft.
- Fellows published a preliminary report.
- Attendings finalized a report the following day.

Intervention

- Residents encouraged to publish prelims.
- Attendings issue final report overnight, with a final TAT expected within 90 minutes.
- Neuro final reports by in house clinical instructors, Non-Neuro final reports by teleradiology.

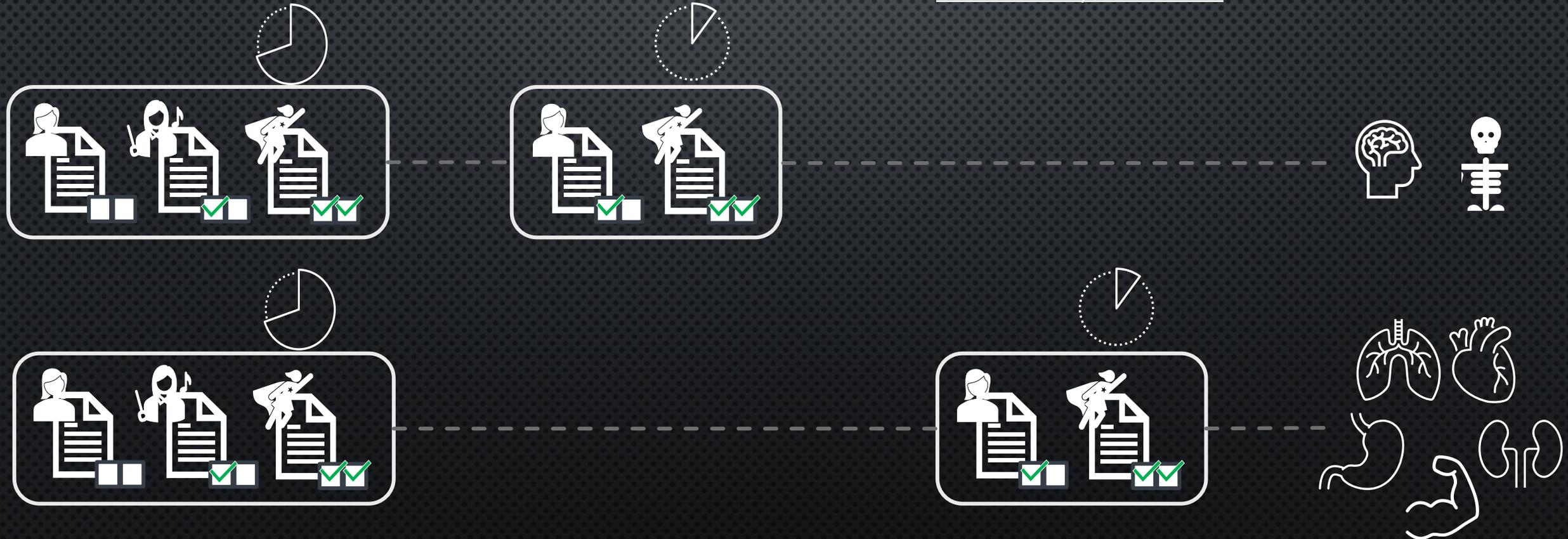
Note – an additional Swing resident (5PM – 2AM) was added 07/2020 due to increased volumes.

# Methods

Baseline  
(12/2018 – 12/2019)

1<sup>st</sup> Intervention  
Neuro Final (01/2020)

2<sup>nd</sup> Intervention  
Non-Neuro Final (11/2021)  
Chest, Body, CVI, MSK



# Results

## Baseline:

- Median final TAT was around 6-10 hours.
- Residents issued drafts for 75% and 90% of Neuro and Non-Neuro ED studies, rarely publishing prelims.

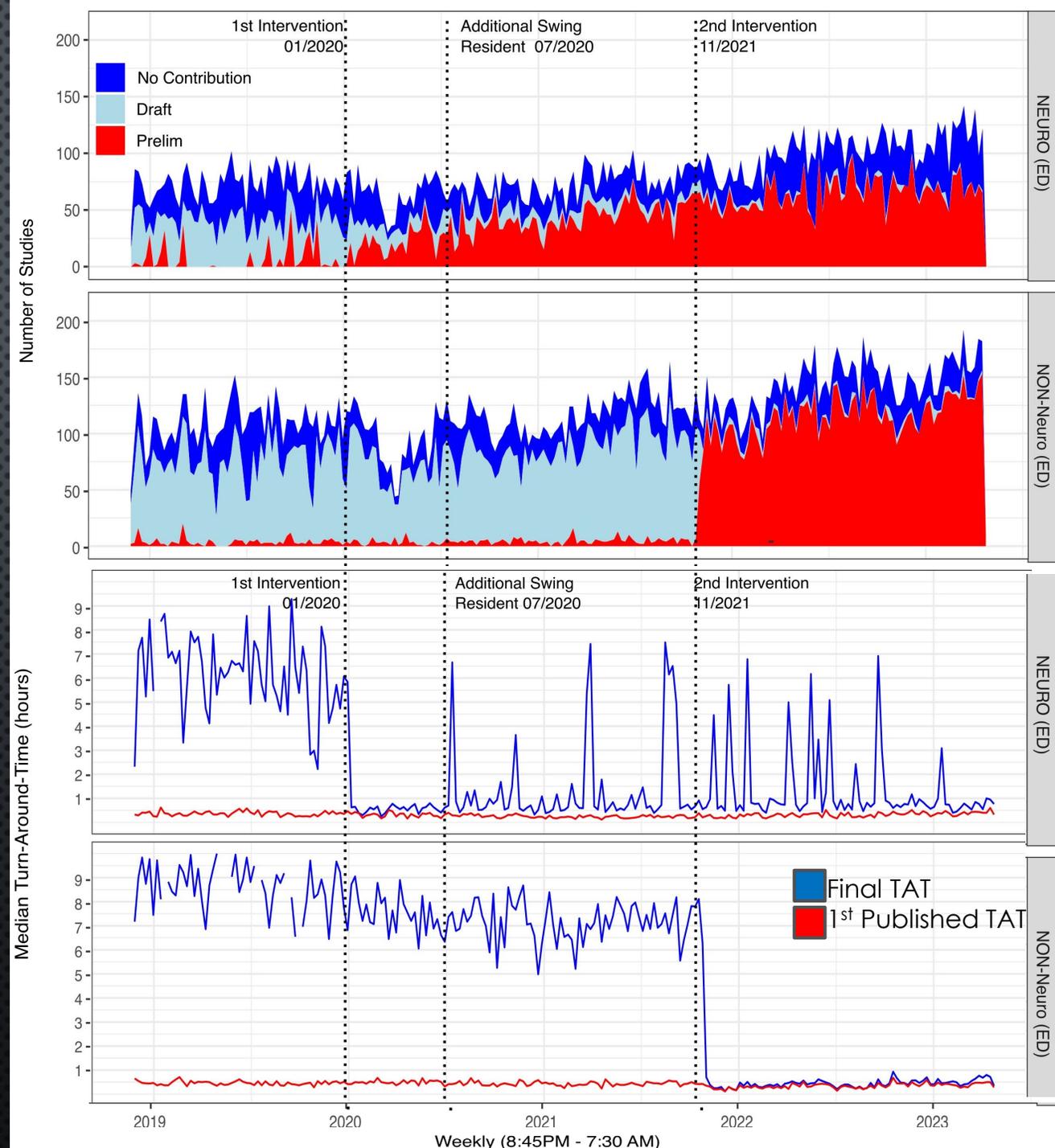
## 1<sup>st</sup> intervention:

- Median Neuro final TAT decreased to 60 min (excluding weeks with 1st year fellow coverage).
- Resident publication of prelim reports for Neuro ED studies increased: 30% (early 2020), 70% (early 2021), 84% (early 2022), and 65% (early 2023).

## 2<sup>nd</sup> Intervention

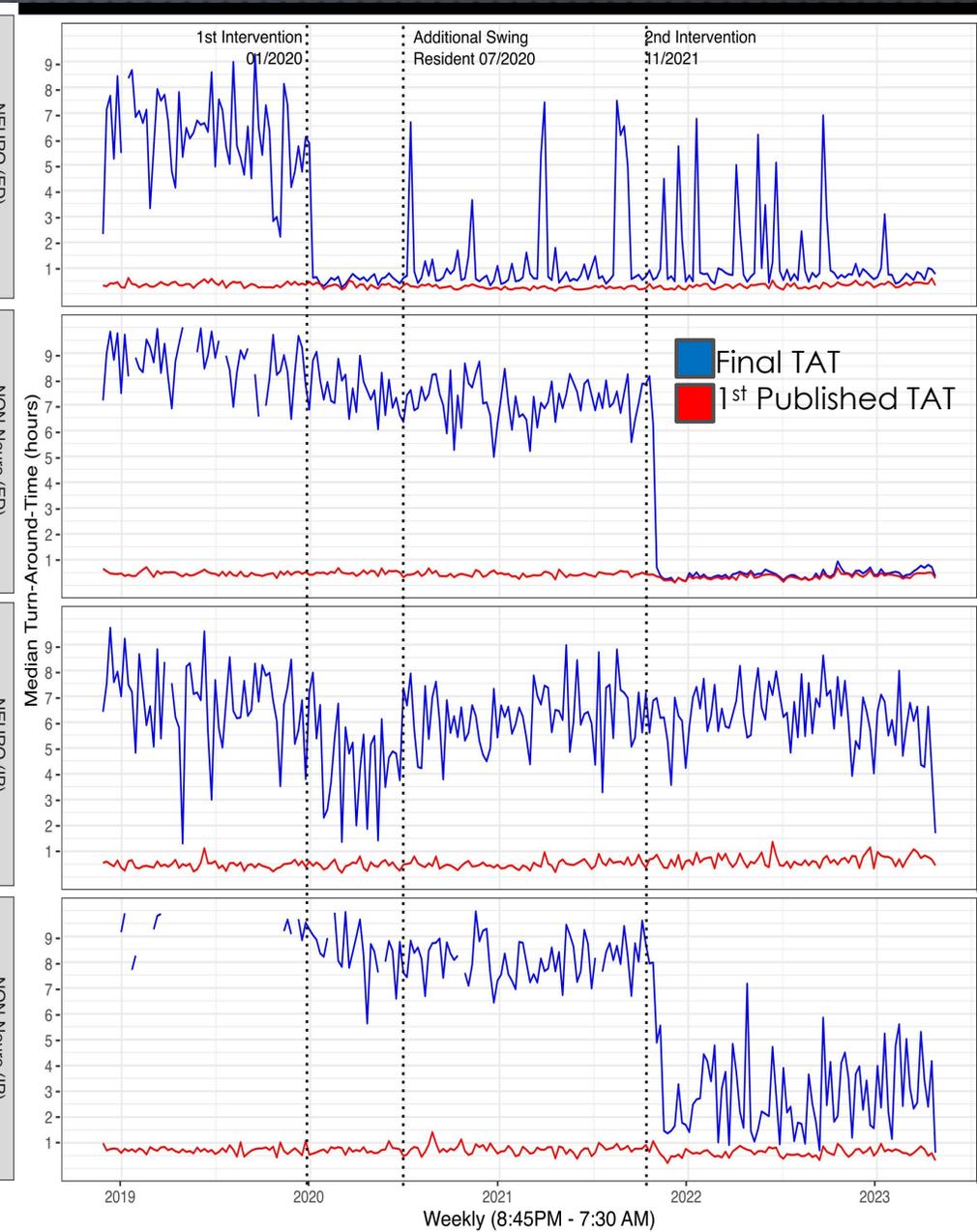
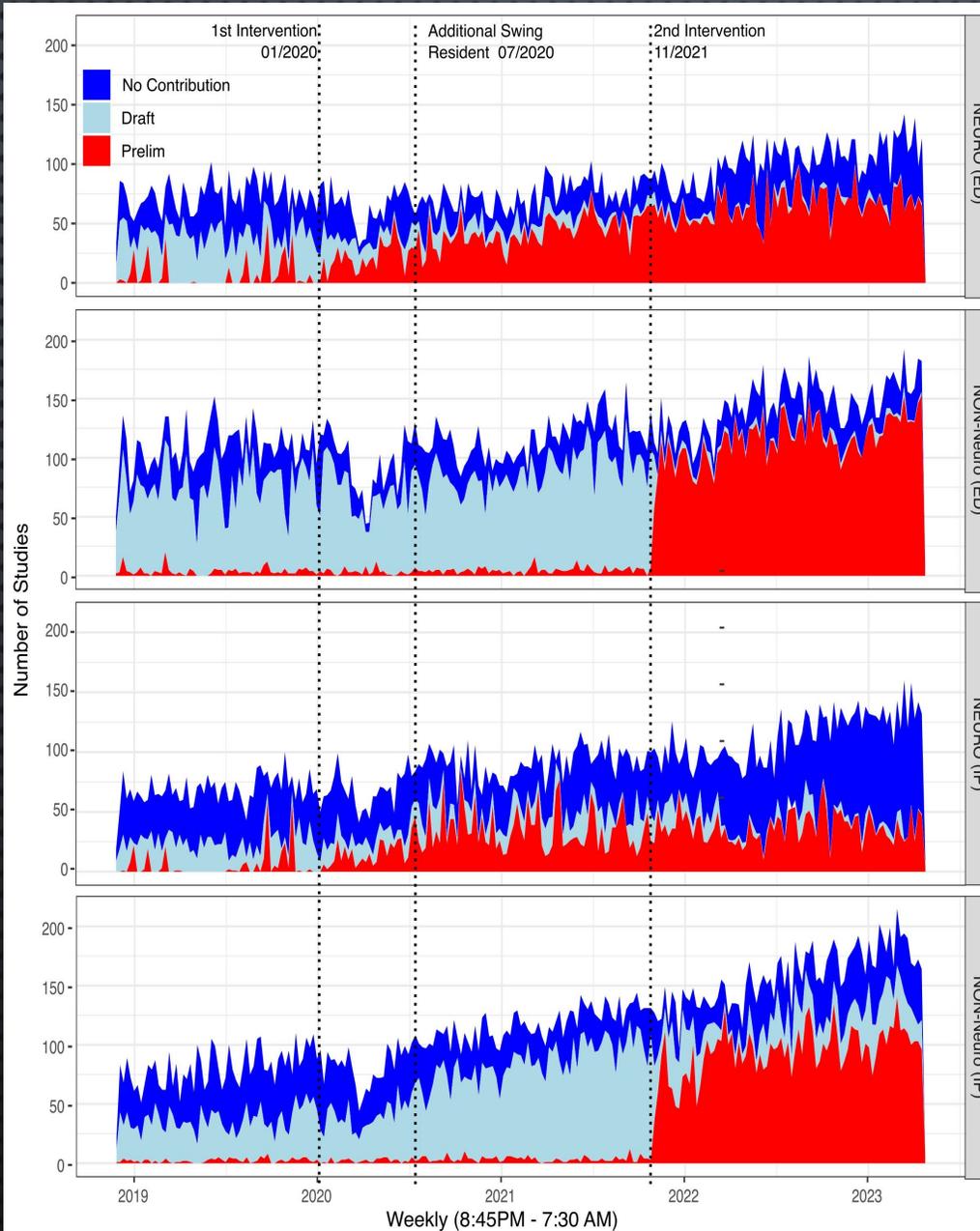
- Median Non-Neuro final TAT decreased to 40 min.
- Residents published prelim reports for most Non-Neuro ED studies (90%).

No increase in ED-reported safety events arising from overread changes was seen despite increases in resident published preliminary reports. No increase in preliminary TAT.



# Results

Residents similarly increased their contribution of published preliminary reports for inpatient (IP) exams after each intervention.



# DISCUSSION

- Over time, increasing demands for higher-level radiology interpretation has eroded resident autonomy and education during after hours call.
- Independent call represents a pivotal learning experience that forces trainees to apply their knowledge, providing valuable decision-making experience not obtained when directly supervised during the day.
- Here we present an approach that restored resident autonomy. The shift from fellow preliminary reports to rapid attending-level final reports provided the opportunity for residents to publish preliminary reports on call.
- We showed that this call structure facilitated resident comfort with voluntarily publishing preliminary reports, while mitigating patient risk, and without increasing the time until first published report.