



Variability in Patterns of Decision-Making for Patients Admitted to Observation Status

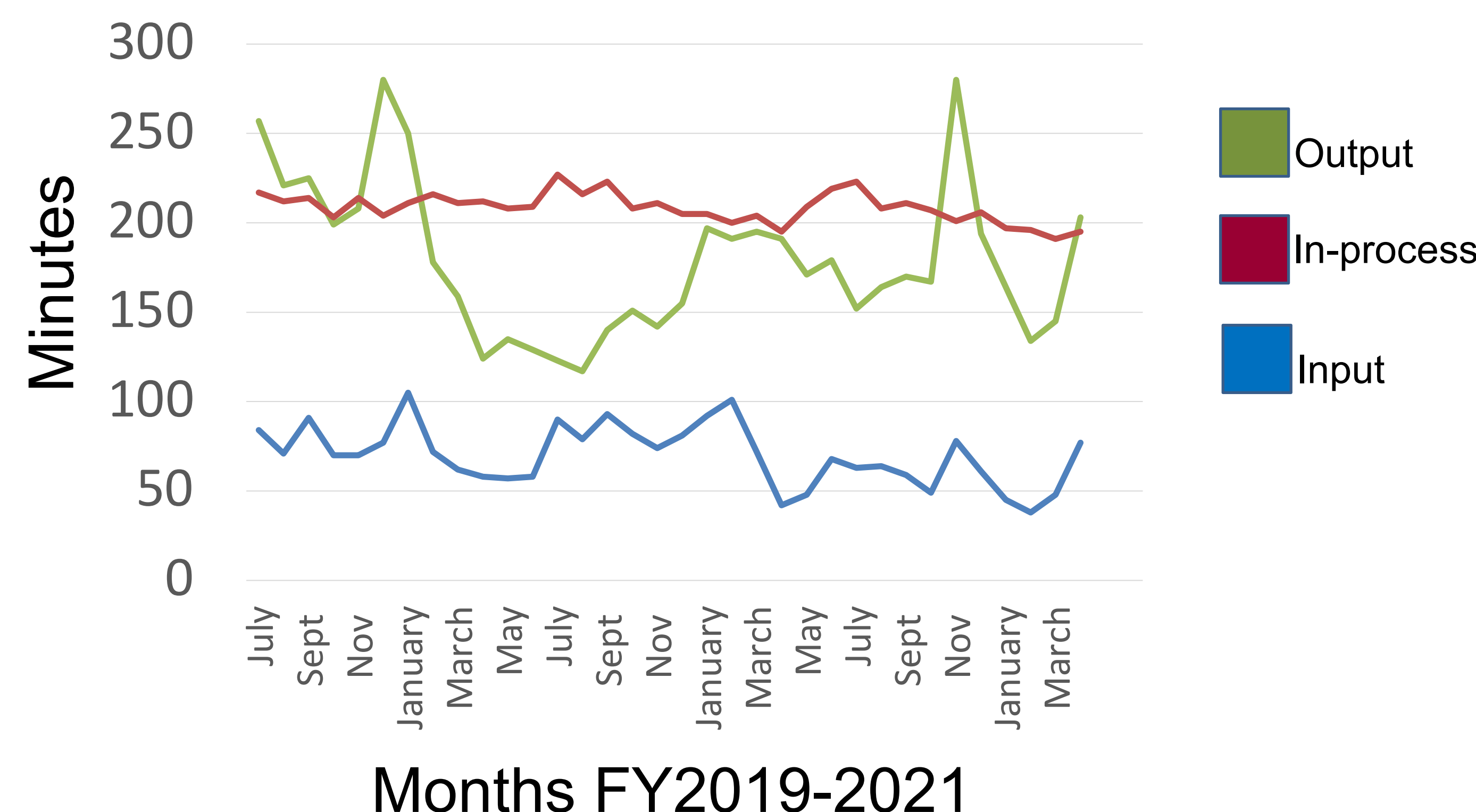
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Background

Emergency department (ED) throughput can be divided into three phases: input, in-process, and output. In-process times, being physician evaluation to disposition decision, are most within the control of the ED physician, yet are shown to be overall stagnant despite major fluctuations in input and output times. Though overall relatively stable patients, intra-physician variability for decision times for disposition to observation status (OBS) have been described and have implications on crowding and cost of care. Because OBS patients by definition are hemodynamically stable and fall into a defined range of clinical severity, variability in their management suggests variability in physician practice patterns. There have been few studies of specific decision-making choices that contribute to practice variability. This study sought to evaluate the use of Computed Tomography (CT) scans as one possible factor in intra-physician variability and the overall effect on in-process times for OBS patients.

Figure 1: ED input vs in-process vs output time.



Study Design

- This study examines 832 consecutive OBS patients admitted through the ED of a large, academic tertiary care center in November and December of 2019.
- Charts were abstracted from 39 individual physicians for in-process times, ordering of CT scans, in-hospital length of stay (LOS) and change in diagnosis.

Results

Figure 2: CT utilization in OBS patients with associated In-Process Time and Coefficient of Variation (COV).

	No CT Ordered	CT Ordered
Mean In-Process Time	3.05	5.09
Standard Deviation	1.54	2.59
Coefficient of Variation	18.2%	23.02%

Figure 3: In-process times of individual physicians as function of CT vs no CT.

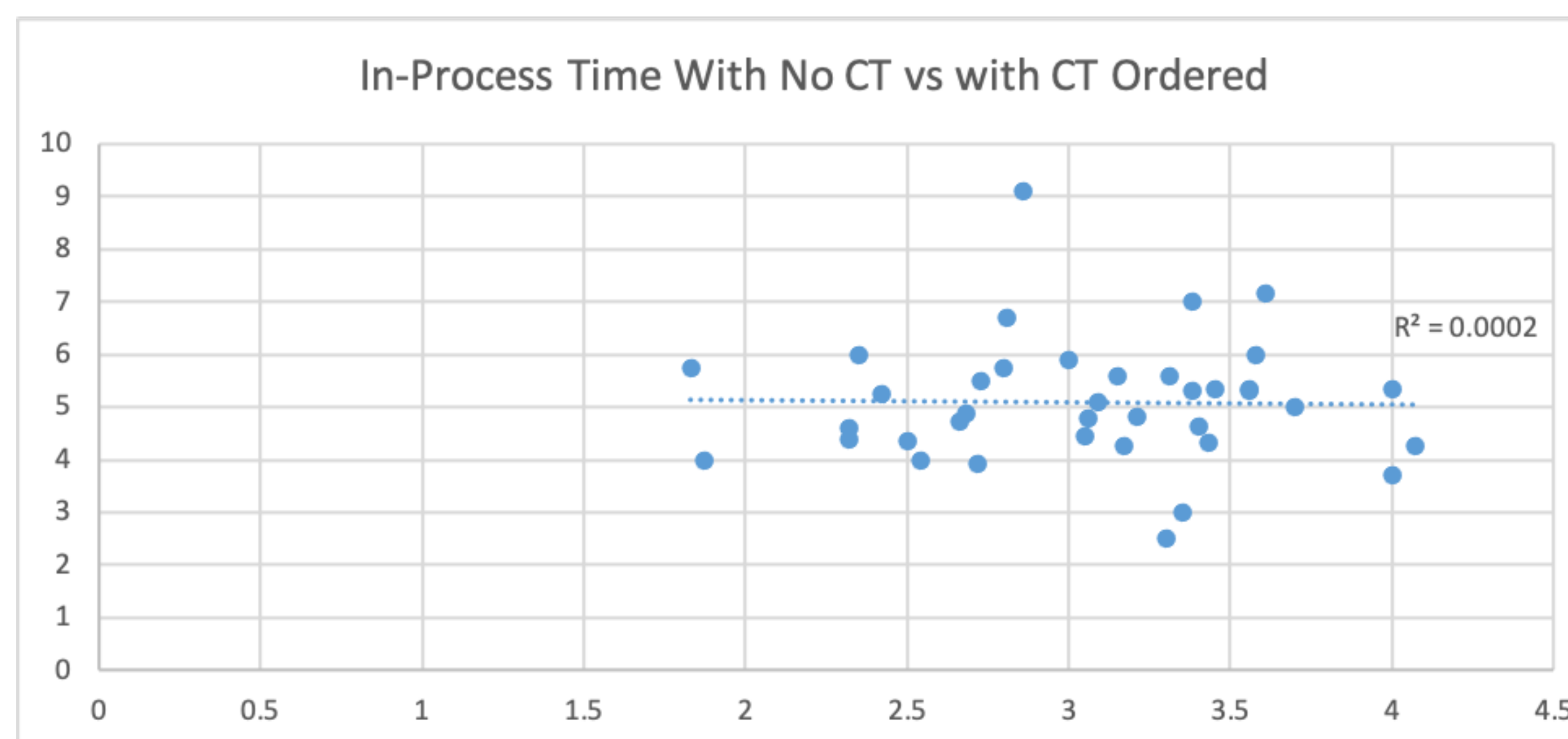
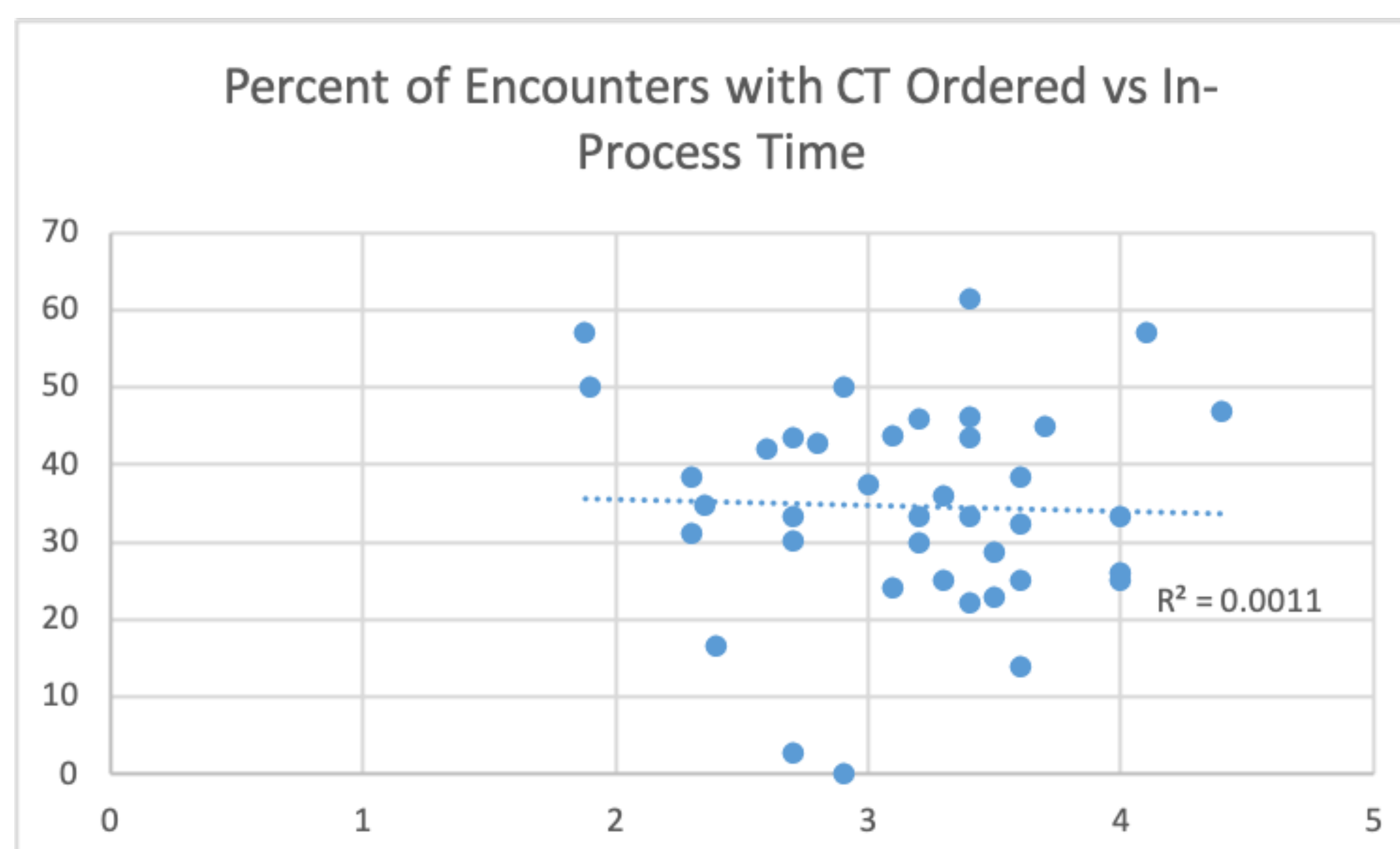


Figure 4: Correlation of frequency of CT ordering with overall in-process times.



Conclusions

- It is clear that despite the non-critical, stable nature of OBS patients, there is significant variability in how work up is approached in the ED.
- CT utilization prolongs in-process time, but provider-to-provider variability in decision-making is diverse with or without CT scans.
- There is no identifiable correlation between CT use or non-use and improved in-process time, implying CT utilization is not a single driver in the variability of OBS patient processing.

Other key takeaways:

- There was a very low rate of discordance between admitting and discharge diagnosis, with or without CT use in the ED, suggesting there is high quality diagnostic accuracy with or without CT in the ED.
- Very few CTs were ordered post-admission, and if so, were rarely management changing.

Future Directions

Though there is no clear conclusion with regards to CT use in the ED on OBS patients from this data reviewed, there are additional avenues to explore:

- Indications for CT use in the ED that are variable between providers.
- Cost/Benefit of deferring certain CTs until after admission.
- Reconsider CT utilization with respect to physician productivity (RVU/hour) or other markers of physician efficiency.

References

Schreyer, K. E., & Martin, R. (2017). The Economics of an Admissions Holding Unit. *The western journal of emergency medicine*, 18(4), 553–558. <https://doi.org/10.5811/westjem.2017.4.32740>

This study has no financial or other disclosures of any type.