



# Quantifying Emergency Physician Interruptions due to Electrocardiogram Review



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## Background

- Interruptions are recognized as harmful to safety and efficiency, and are especially prevalent in the emergency department (ED) setting.
- Interventions targeted at specific sources of interruption have shown more promise than general strategies at mitigating such harm.
- We assess the role of electrocardiogram (ECG) review as a source of ED interruptions and potential target for interventions.

## Methods

- We analyzed emergency physician time use during the course of a clinical shift using a time-and-motion design.
- A research assistant observed a convenience sample of emergency physicians during a single shift each, observing and logging transitions between different tasks using an electronic device.
- Instances of ECG review were tallied, and were considered an interruption if the physician returned immediately to their previous task.

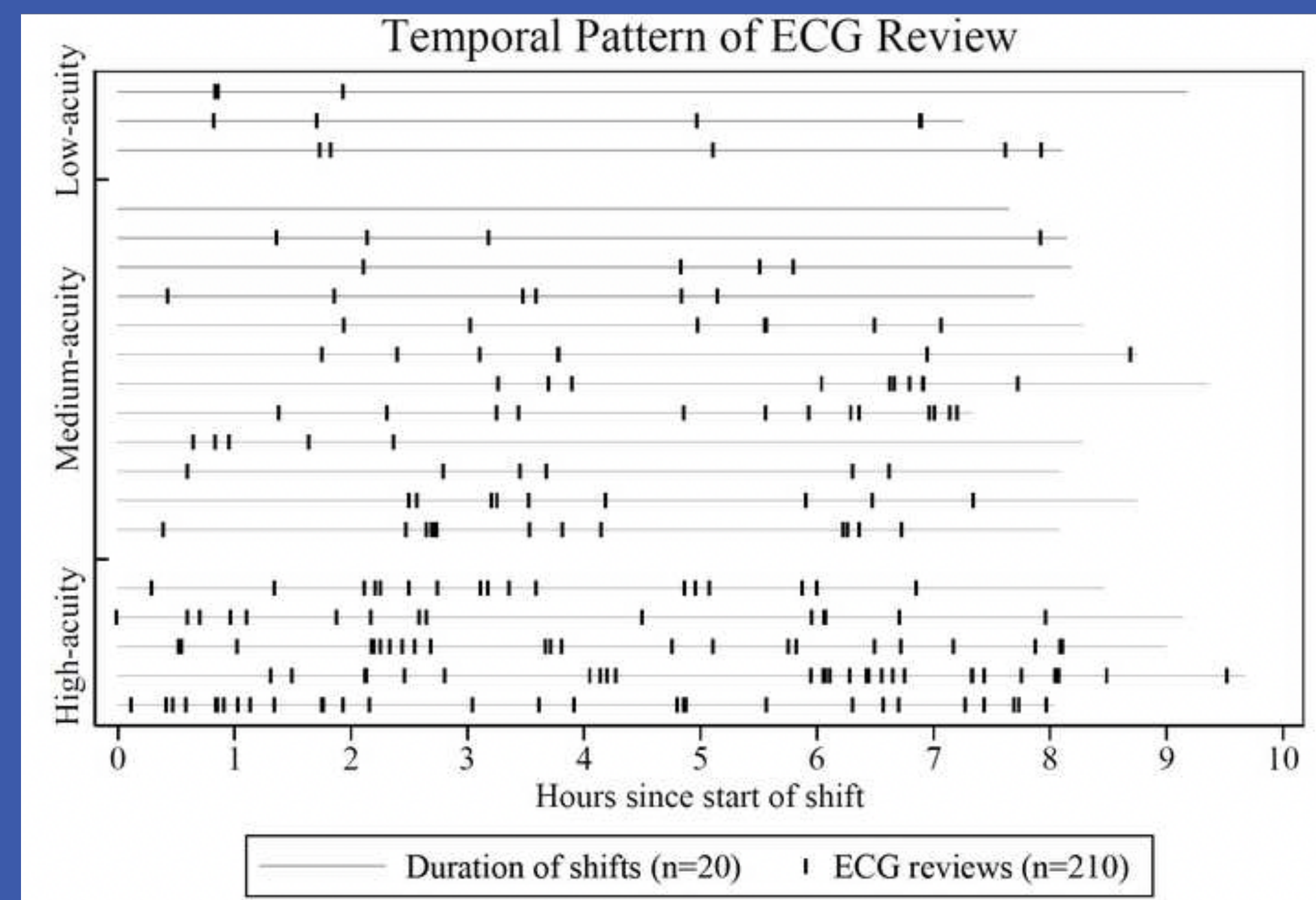


Figure 1. Temporal pattern of EKG review

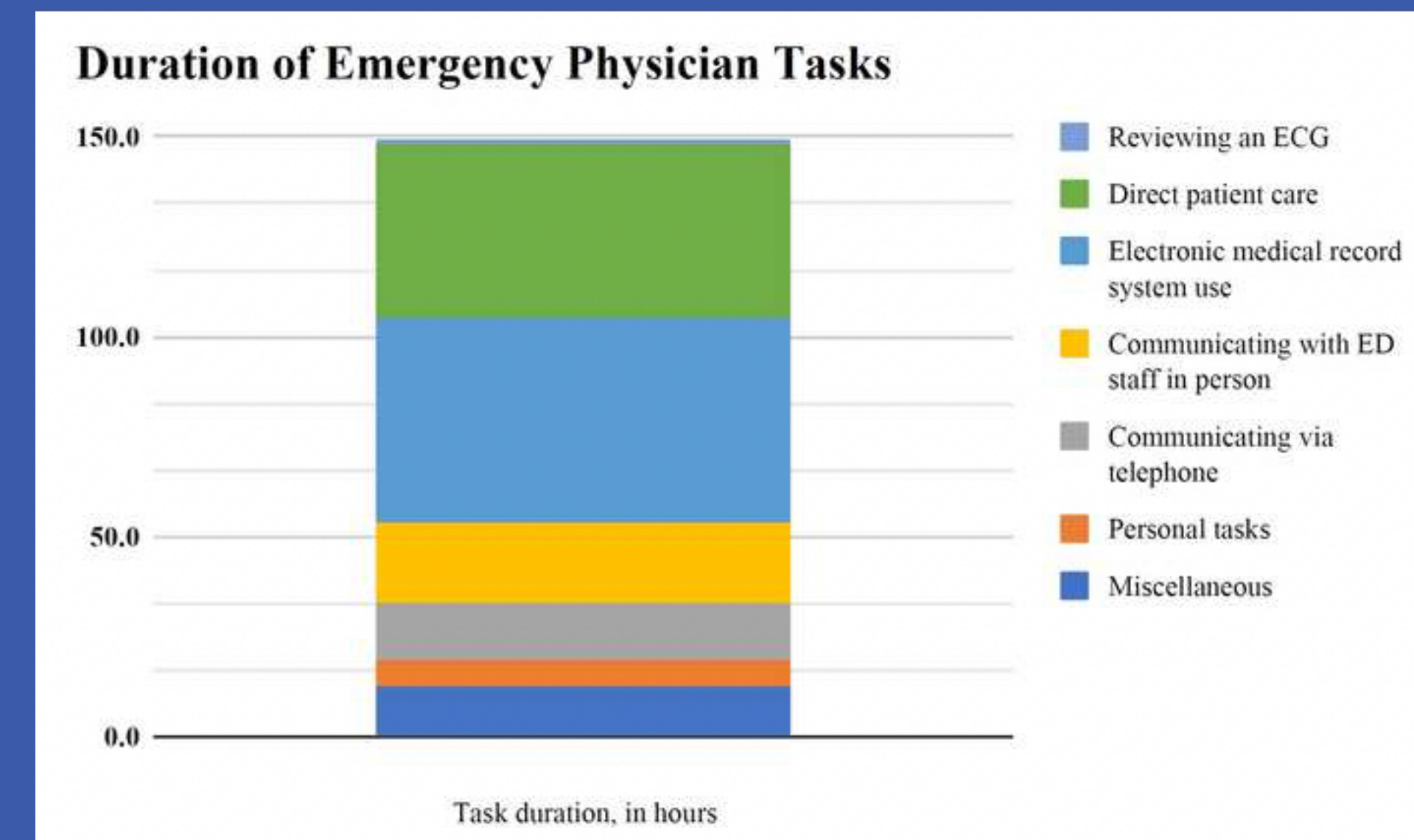


Figure 2. Duration of ED Physician Tasks

## Results

- 20 shifts were observed for a total 150 hours.
- 211 ECG reviews occurred, a rate of 1.4 per hour on average, higher among physicians staffing a zone with higher acuity patients, 2.8 per hour, where clustering of multiple ECG reviews in succession was more common (Figure).
- 75% of ECG reviews required less than 30 seconds.

- 102 (48%) of all 211 ECG reviews were an interruption.
- The tasks most frequently interrupted were working in the electronic medical record system (68 of 102, 67%) and communicating with other ED staff (23 of 102, 23%).

## Conclusion

- Immediate review of ECGs was a substantial driver of interruptions for emergency physicians.
- Interventions to integrate ECG review more naturally into physician workflow may improve patient safety by reducing these interruptions.